PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
RRV1831

COMPACT DISC PLAYER
CDJ-500II

- **Refer to the service manual RRV1087 for CDJ-500G/KUC and CDJ-500/SELM.**

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	CDJ-500II		
SL	○	AC110V/120V/220-230V/240V	With the voltage selector

- **The schematic diagrams and PCB connection diagrams are all mentioned in this manual.**

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T - SZE JULY 1997 Printed in Belgium

1. EXPLODED VIEWS AND PARTS LIST

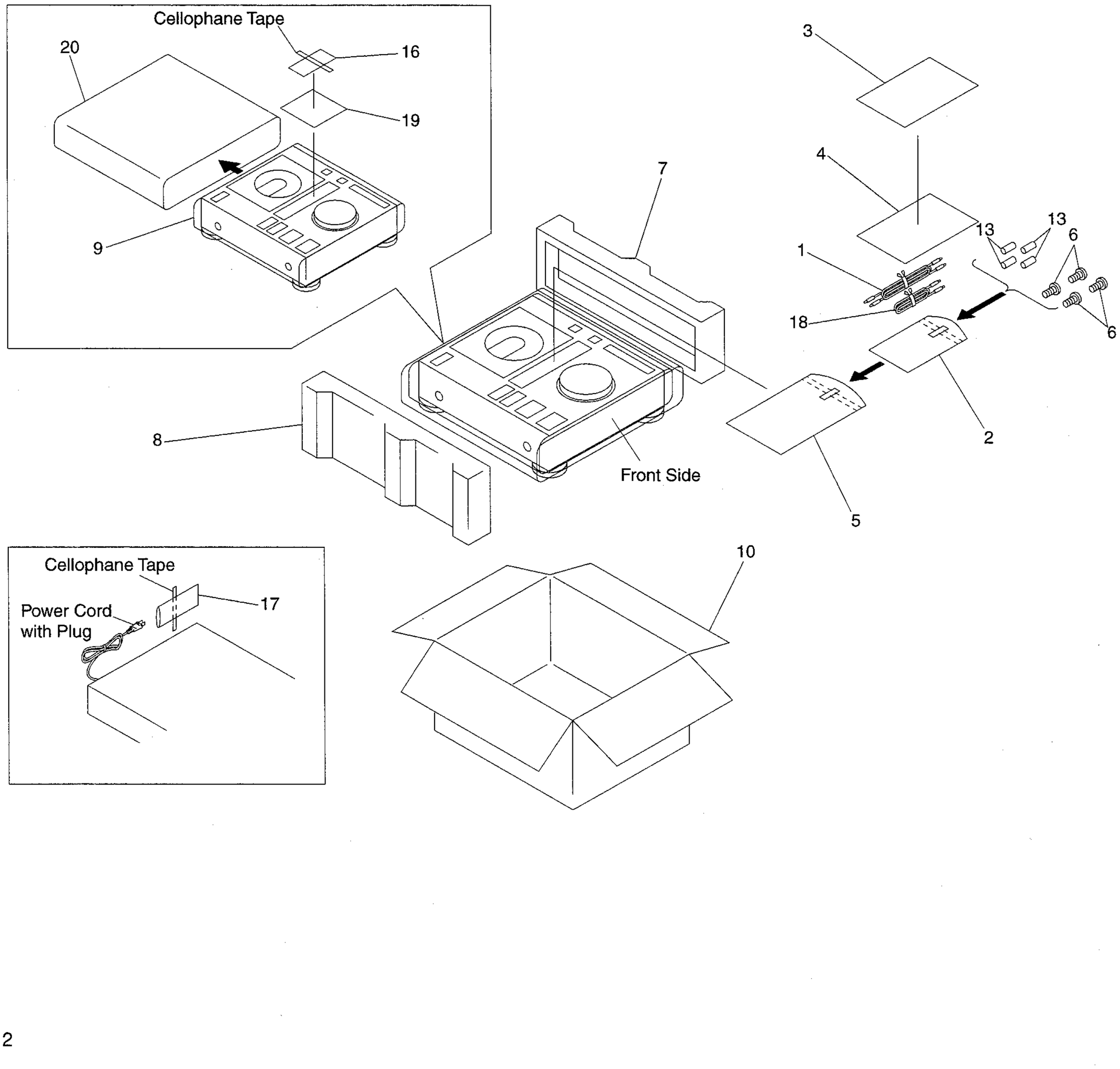
NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Ref. No.: Numbers following P and hyphen (–) indicate the page (S) and location number (S) in the RRV1087 service manual, respectively.*
- *Screws adjacent to ▼ mark on the product are used for disassembly.*

Note) Regular inspection/Cleaning

When performing regular inspections, pay particularly careful attention to inspect and clean the parts with the part No. in □ in the parts list and following parts.

- The sliding sections of the switch holder A assy and the hook drive levrt.
- The lens in the PICKUP ASSY (Cleaning).

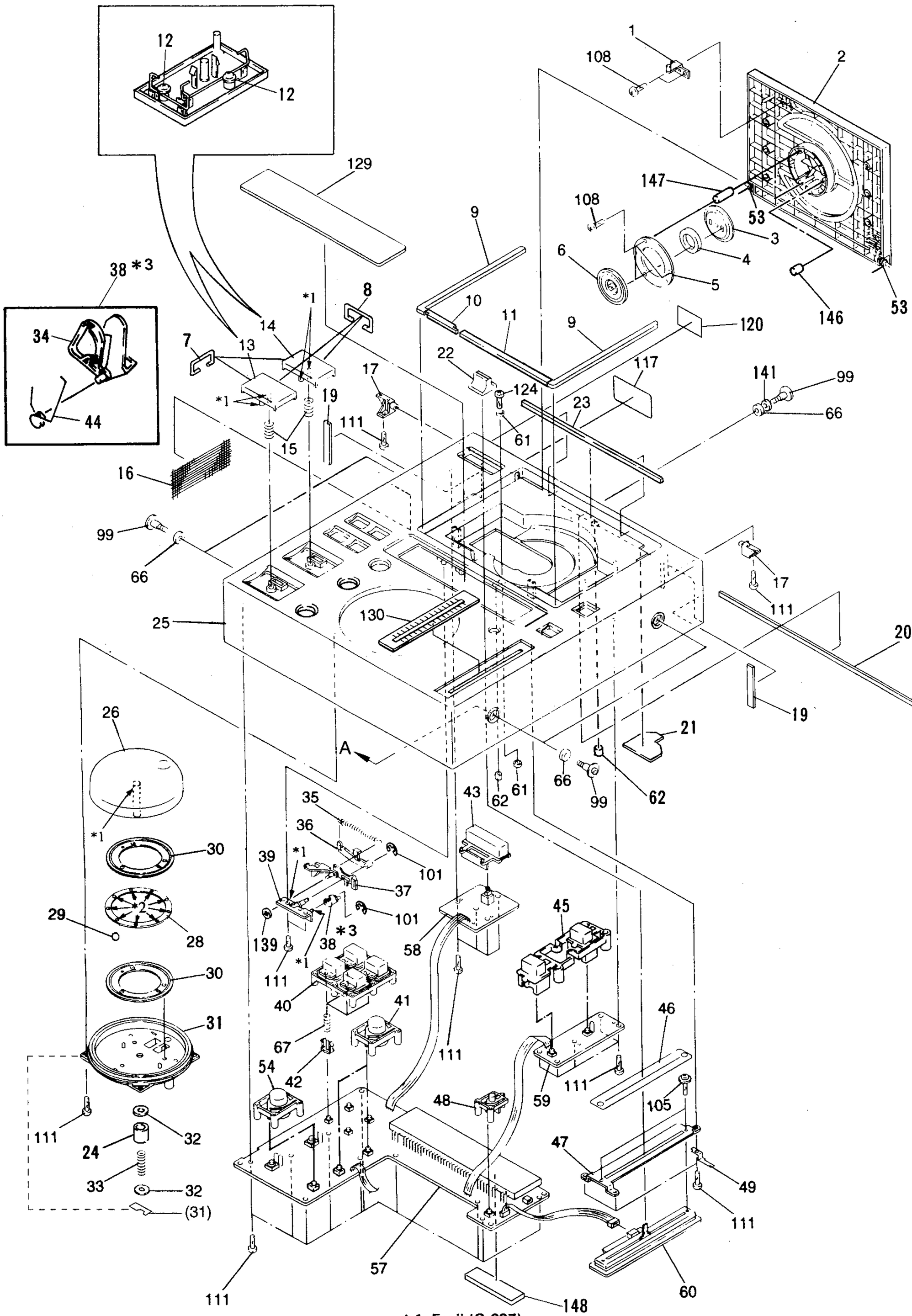
1.1 PACKING



Parts List

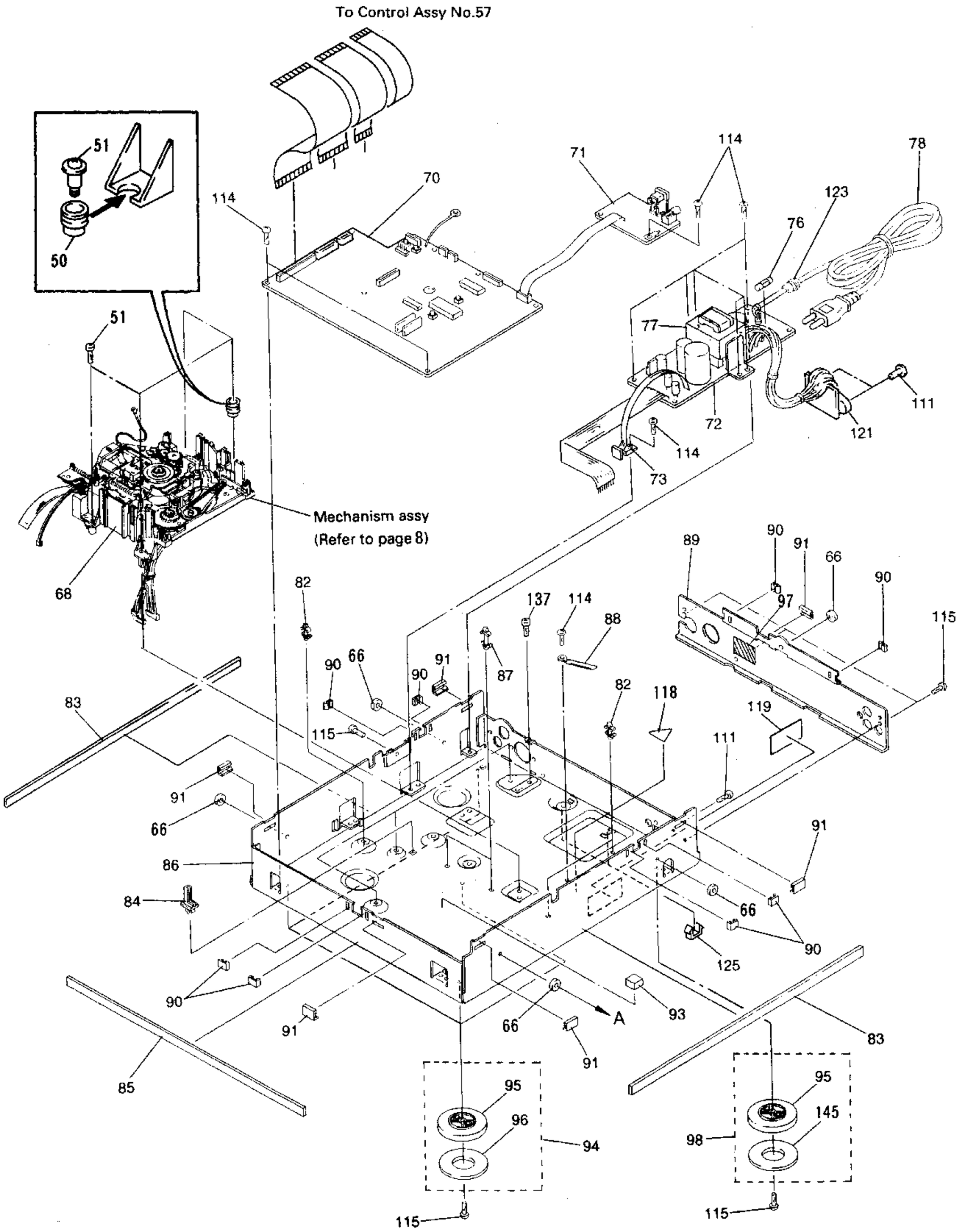
Mark	No.	Description	Part No.
	1	Output Cable (L=1.5m)	VDE1033
NSP	2	Vinyl bag (80 x 145 x 0.03)	REG-013
NSP	3	Caution label 220V	ARR7003
	4	Operating Instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Chinese)	DRB1219
	5	Vinyl bag (230 x 340 x 0.03)	Z21-038
	6	Screws for Rack Mounting	IBZ30P180FMC
	7	Pad L	DHA1290
	8	Pad R	DHA1291
	9	Sheet	RHX1006
	10	Packing Case	DHG1792
	11	••••••	
	12	••••••	
	13	Spacers for Rack Mounting	DLA1637
	14	••••••	
	15	••••••	
NSP	16	Caution SG	DRM1199
NSP	17	Cord Sheet	VEG-012
	18	Control Cable (L = 1m)	PDE1247
NSP	19	Silica Gel	AEN7001
	20	Poly Bag	DHL1105

1.2 EXTERIOR SECTION



*1: Froil (G-397)

*2: Froil (G-478B)


To Control Assy No.57
51
50
51
68
Mechanism assy
(Refer to page 8)
114
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123
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111
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121
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137
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A
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145
98
115

Parts List

Mark	No.	Description	Part No.
	1	Roller Holder Assy	DXB1626
	2	Door Assy	DXA1805
	3	Yoke	PNB1216
	4	Clamp Magnet	PMF1014
	5	Clamper Holder	DNH1920
	6	Clamper (under)	DNK1791
	7	Synchronous Shaft A	DLA1717
	8	Synchronous Shaft B	DLA1718
	9	Air Seal A	DEC1892
	10	Door Cushion B-L	DEC2157
	11	Air Seal B-R	DEC2158
	12	Screw	PBA1062
	13	Play Knob	DAC1837
	14	Cue Knob	DAC1838
	15	Spring	DBH1253
	16	Net	DED1087
	17	Door Holder	DNK2952
	18	••••••	
	19	Cushion C	DEC1781
	20	Cushion D	DEC1782
	21	Brind Sheet	DEC1897
	22	Slide Knob	DNK2936
	23	Door Cushion E	DEC1950
	24	Bush	DLA1725
	25	Control Panel	DNK3454
	26	Jog Dial	DNK3189
	27	••••••	
	28	Retainer	DNK1849
	29	Steel Ball	VNX1006
	30	Thrust Stay B	DNH1925
	31	Jog Holder	DNK3190
	32	Smoother	DNK2933
	33	Spring J	DBH1321
	34	Push Up Hook	DNK3192
	35	Lever Spring	DBH1254
	36	Lever	DNK3210
	37	Hook Drive Lever	DNK2945
	38	Hook Assy	DXB1509
	39	Switch Holder A Assy	DXB1510
	40	Konb A	DNK2931
	41	Loop Knob	DNK2943
	42	Limiter	DNK2949
	43	Power Knob	DNK2942
	44	Fook Spring A	DBH1354
	45	Collective Knob B	DAC1839
	46	VR Packing	DEB1303
	47	VR Plate	DNF1485
	48	Time Mode Knob	DNK2944
	49	VR Spring	DBK1088
	50	Mechanism Float Rubber	DEB1321
	51	Mechanism Base Screw	DBA1091
	52	••••••	
	53	Door Spring	DBH1355
	54	Reloop Knob	DNK3200
	55	••••••	
	56	••••••	
	57	CONTROL ASSY	DWG1462
NSP	58	POWER SW ASSY	DWS1247
NSP	59	EJECT SW ASSY	DWS1248
	60	SLIDER ASSY-S	DXX2225
	61	Rubber Spacer B	DEB1272
	62	Rubber Cap	DEB1273
	63	••••••	
	64	••••••	
	65	••••••	
	66	Float Rubber B	DEB1270
	67	Knob Spring	DBH1256
NSP	68	Mechanism Assy	DXA1771
	69	••••••	
	70	MAIN BOARD ASSY	DWX1794
	71	AUDIO OUT ASSY	DWX1587
	72	TRANSFORMER BOARD ASSY	DWR1223
NSP	73	REGULATOR UNIT	DWX1607
	74	••••••	
	75	••••••	
⚠	76	Fuse (T250mA)	AEK1048
⚠	77	Power Transformer (110, 120, 220-230, 240V)	DTT1125
⚠	78	Power Cord With Plug	PDG1003
	79	••••••	
	80	••••••	
	81	••••••	
NSP	82	PCB Support	VEC1508
	83	Cushion A	DEC1775
	84	Holder	PNW2343
	85	Cushion B	DEC1776
NSP	86	Chassis	DNA1195
	87	PCB Support	DEC1773
NSP	88	Cord Clamper	ZCB-069Z
NSP	89	Rear Panel	DNC1465
	90	Rubber Spacer C	DEB1276
	91	Rubber Spacer A	DEB1271
	92	••••••	
	93	Cushion	DEB1279
	94	Insulator Assy	DXA1729
NSP	95	Insulator	VNK1353
NSP	96	Cushion	DEC1827
NSP	97	Fuse Caution Label	VRW-548
	98	Insulator Assy	VXA1454
	99	SH Screw	PBA1033
	100	••••••	
	101	E Ring	YE12FUC
	102	••••••	
	103	••••••	
	104	••••••	
	105	Screw	AMZ30P040FMC
	106	••••••	
	107	••••••	
	108	Screw	BPZ26P060FNI
	109	••••••	
	110	••••••	

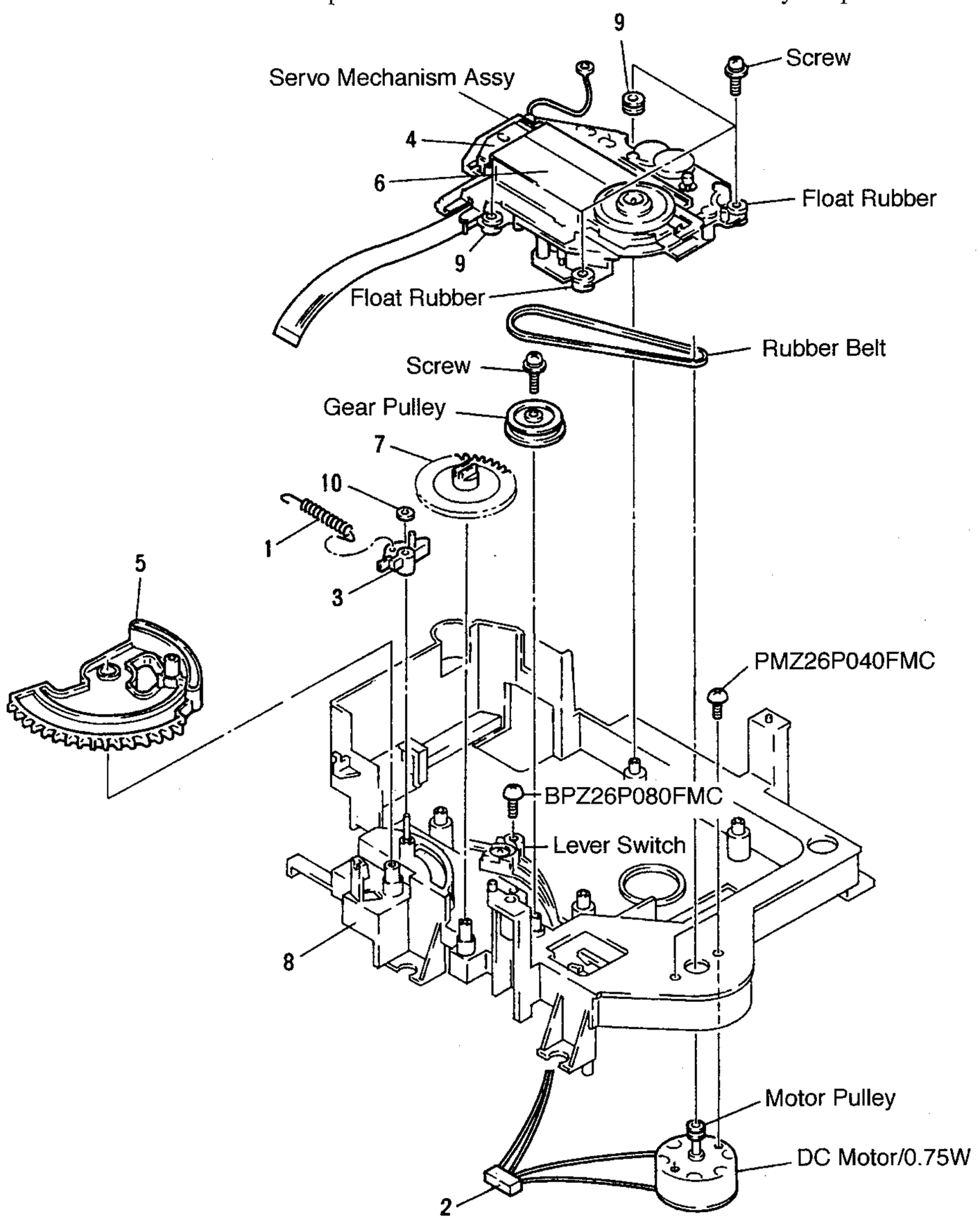
Mark	No.	Description	Part No.
	111	Screw	BPZ30P080FMC
	112	••••••	
	113	••••••	
	114	Screw	BBZ30P060FMC
	115	Screw	BBZ30P080FZK
	116	••••••	
NSP	117	Caution Label (F)	VRW-328
	118	Caution Label (G)	VRW-329
	119	Caution Label	PRW1018
NSP	120	SISIR REGISTRATION	DRW1878
NSP	121	VOLTAGE SELECTOR BOARD ASSY	DWS1256
	122	••••••	
	123	Strain Relief	CM-22B
	124	Screw	DBA1079
	125	Screw Cap	DNK2959
	126	••••••	
	127	••••••	
	128	••••••	
	129	Panel	DAH1750
	130	Slide Sheet	DAH1751
	131	••••••	
	132	••••••	
	133	••••••	
	134	••••••	
	135	••••••	
	136	••••••	
	137	Screw	BMZ40P060FMC
	138	••••••	
	139	Stopper Ring	YS20FBT
	140	••••••	
	141	Washer	WA52D080D025
	142	••••••	
	143	••••••	
	144	••••••	
NSP	145	Cushion	VEC1224
	146	Short-Collar	DLA1788
	147	Long-Collar	DLA1789
	148	Damper	VEB1172

MECHANISM ASSY

DXA1771 and DXA1684 are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.		Remarks
			DXA1684	DXA1771	
P37-4		Float Base	PNW2032	Not used	
P37-5		Clamp Cam	DNK3029	Not used	
P37-8		Drive Gear 2	PNW2369	Not used	
P37-15		Loading Base	DNK3030	Not used	
P37-46		2MM Pich Connector Assy 4P	DDE1083	Not used	
P37-47		2MM Pich Connector Assy 4P	DKP2863	PG04 MM-G20	
		Release Lever Spring	Not used	DBH1258	No. 1
	NSP	2MM Pich Connector Assy 5P	Not used	DDE1106	No. 2
		Release lever	Not used	DNK2938	No. 3
		PU Cover	Not used	DNK3188	No. 4
		Drive Gear A	Not used	DNK3191	No. 5
		Shutter	Not used	DNK3193	No. 6
		Drive Gear B	Not used	DNK3199	No. 7
		Mechanism Base Assy	Not used	DXB1568	No. 8
		Float Rubber	Not used	PEB1014	No. 9
		Washer	Not used	WT16D032D025	No. 10

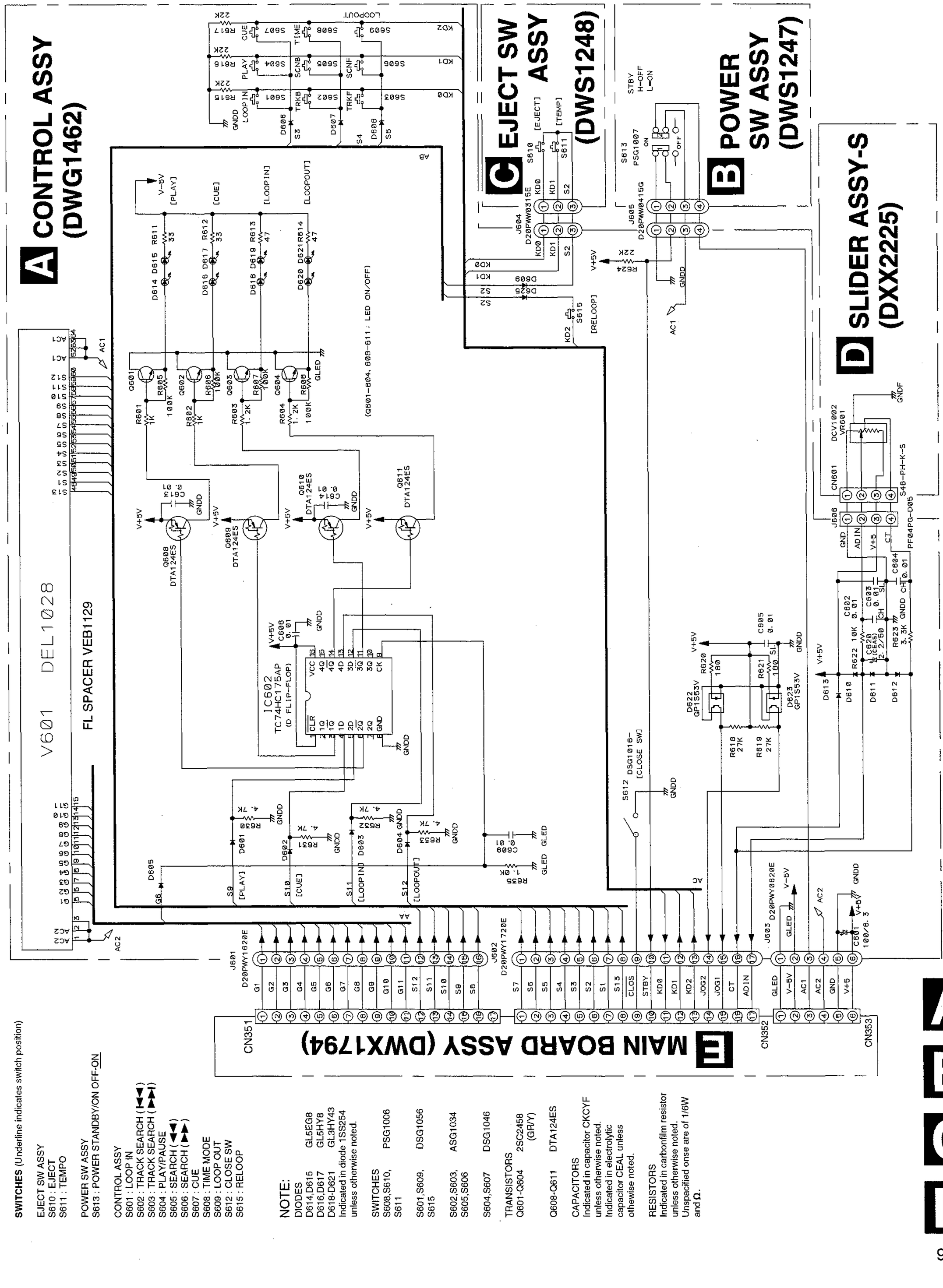
Note: The number in the remarks column corresponds to the number in the Mechanism assy's exploded view below.



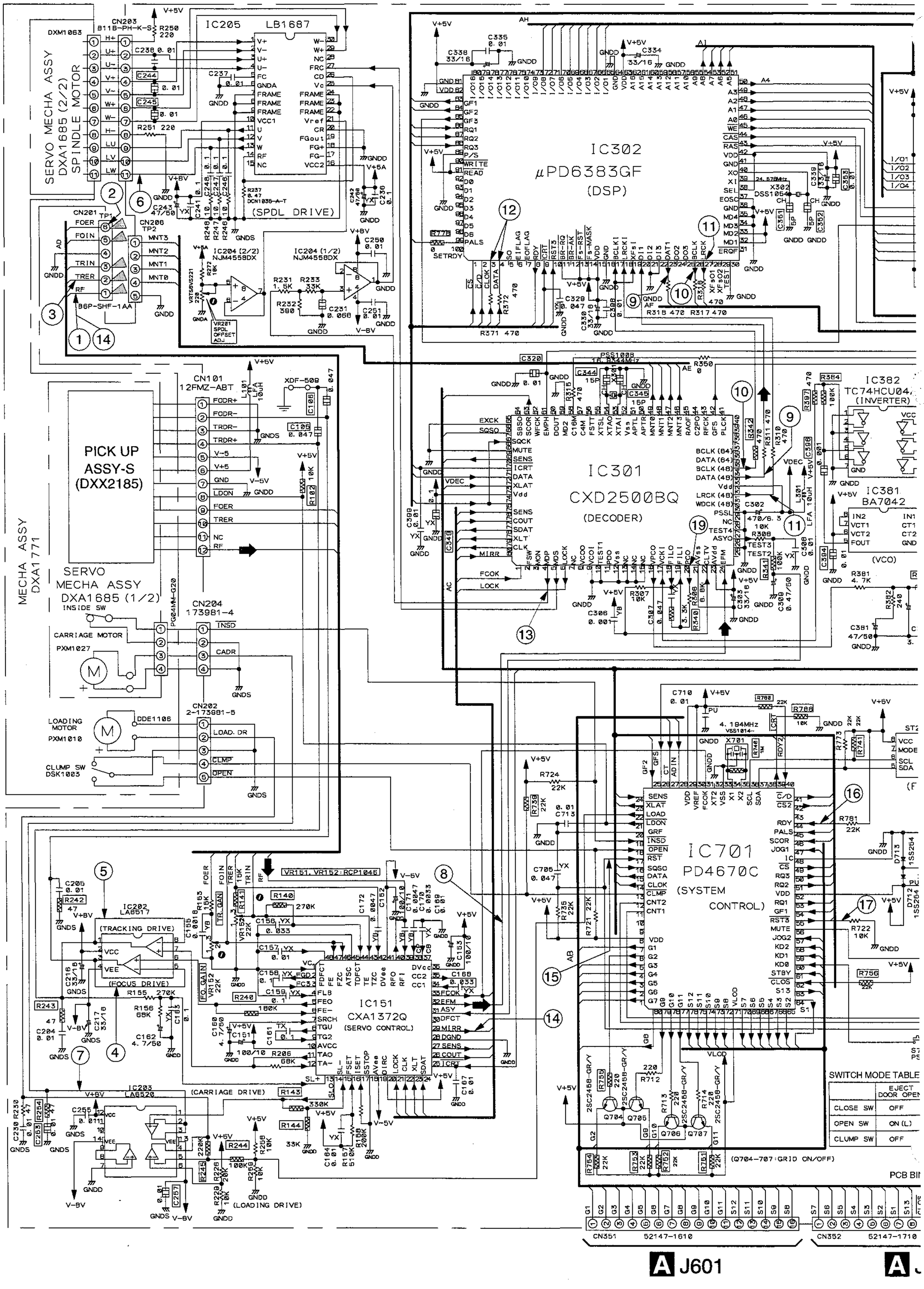
2. SCHEMATIC DIAGRAM

2.1 CONTROL ASSY, POWER SW ASSY, EJECT SW ASSY AND SLIDER ASSY-S

NOTE: When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or"PCB PARTS LIST".



3.2 MAIN BOARD ASSY, TRANSFORMER BOARD ASSY, AUDIO OUT ASSY, REGULATOR UNIT AND VOLTAGE SELECTOR BOARD ASSY



E MAIN BOARD ASSY (DWX1794)

SIGNAL ROUTE
➡: AUDIO SIGNAL

IC501 (DRAM)
HM514800CLTT-7

IC303
μPD6383GF
(DSP)

IC502
(SRAM)
LH52256AN-70LL

IC382
4HCU04AP
(INVERTER)

IC381
BA7042
(VCO)

IC401
SM5841CP
(DIGITAL FILTER)

IC402
PCM1700P-L
(DAC)

IC405 (1/2)
NJM4558DX

IC405 (2/2)
NJM4558DX

(IC405 : LOW PASS FILTER)

(Q403, 404 : MUTE)

IC702
ST24C01CB1
(EEPROM)

VC301
VCO
LEVEL
ADJ

VCM1002
45P

MSB ADJ. L
VR401, 402 : RCP1048
MSB ADJ. R

NOTE
: CHIP PARTS
Indicated in carbonfilm resistor unless otherwise noted. Indicated in Ω.
Indicated resistor : 1/6 W
Indicated resistor : 1/10 W
Indicated in coil LAU unless otherwise noted Indicated in uH
Indicated in electrolytic capacitor CEAS unless otherwise noted. Indicated in uF

CERAMIC CAPACITOR : CKCYF or CKSQYF Indicated in uF

YX	CGCYX	Indicated in uF
YB	CKCYB	Indicated in uF
TX	CFTXA	Indicated in uF
PU	CKPUYF	Indicated in uF
SL	CCSQSL	Indicated in F
CH	CCSQCH	Indicated in F
M	CQMA	Indicated in uF

(MUTE)

BOARD IN
JAMPERWIRE

⚠ ORG DDF1002
⚠ VLT DDF1004
⚠ BLU DDF1005
⚠ BRN DDF1001
⚠ GRY DDF1003

EARTH METAL FITTING : KN1 VNF1084

The ⚠ mark found on same component parts indicates the importance of the safety factor of the parts.

G AUDIO OUT ASSY (DWX1587)

I VOLTAGE SELECTOR BOARD ASSY (DWS1256)

H REGULATOR UNIT (DWX1607)

(IC23 : SYSTEMRESET & +5V REGULATOR)

IC23 PQ05RR12

IC101
ICP-N25

IC102
ICP-N15

IC22
NJM79M05FA

DTT1125

DSB1014

DSWW0520E

MODE TABLE

	EJECT DOOR OPEN	PLAY/PAUSE DOOR CLOSE
W	OFF	ON (L)
/	ON (L)	OFF
W	OFF	ON (L)

D20PWY1215G (Q1 : REGULATOR) (IC22 : −5V REGULATOR)

PCB BINDER VEF1040

F TRANSFORMER BOARD (DWR1223)

Note:
The numbers marked with a circle show the number of each measuring point, which correspond to the number in the service manual CDJ-500G(ORDER NO. PRV1087) on page 2-17.

A J602

A J603

E F G H I

VOLTAGE(V) OF MAIN BORD ASSY

Note) Operation mode : PLAY

IC151(CXA1372Q)

Pin No.	Voltage (V)
1	0
2	0.1
3	0
4	0
5	0.4
6	0
7	0.3
8	0
9	0
10	5
11	0
12	0
13	0.1
14	0 to 0.3
15	0
16	– 4
17	1.3
18	0
19	– 5
20	5
21	0 to 5
22	0 to 5
23	0 to 5
24	0 to 5
25	4.9
26	0 to 5
27	0 to 5
28	0
29	0 to 5
30	– 4.8
31	2.5
32	1 to 4
33	4.9
34	– 1.7
35	– 1.9
36	5
37	– 0.9
38	– 2.1
39	0
40	1
41	– 5
42	0
43	0
44	0
45	0
46	0.1
47	0.1
48	0

IC205(LB1687)

Pin No.	Voltage (V)
1	2.5
2	2.5
3	2.5
4	2.5
5	0.7
6	0
7	0
8	0
9	0
10	2.5
11	3.5 to 3.9
12	3.5 to 3.9
13	3.5 to 3.9
14	0
15	0
16	5
17	0.5
18	0
19	0.7
20	0
21	0
22	0
23	0
24	0
25	0.1
26	0
27	4.9
28	0
29	2.5
30	2.5

IC301(CXD2500BQ)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	4.9	41	1
2	0	42	5
3	5	43	2.5
4	0.5 to 0.6	44	0
5	4.9	45	5
6	0 to 5	46	4.4
7	0	47	0
8	5	48	0
9	0	49	0
10	0	50	1.2
11	0	51	1.2
12	0	52	0
13	0	53	0.4 to 4
14	0	54	0 to 5
15	0	55	0
16	3.2	56	2.9
17	2.7	57	1
18	2.2	58	0 to4.6
19	2.3	59	0
20	2.3	60	0
21	0	61	0
22	2.2	62	2.5
23	5	63	0 to 5
24	1 to 4	64	0.2
25	0	65	0
26	0	66	0 to 5
27	2.5	67	5
28	0	68	0
29	0	69	0 to 5
30	0	70	4.9
31	2.5	71	0 to 5
32	0 to 5	72	0 to 5
33	5	73	5
34	0 to 5	74	5
35	0 to 5	75	0 to 5
36	2.4	76	0 to 5
37	1.8	77	0 to 5
38	2.5	78	0 to 5
39	0	79	0 to 5
40	5	80	0 to 5

IC302(μPD6383GF)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5	51	0 to 5
2	4.9	52	0 to 5
3	4.6	53	0 to 5
4	0 to 5	54	0 to 5
5	0	55	0 to 5
6	0	56	0 to 5
7	5	57	0 to 5
8	5	58	0 to 5
9	4.9	59	0 to 5
10	4.9	60	0 to 5
11	5	61	0 to 5
12	5	62	5
13	5	63	5
14	5	64	0
15	5	65	0 to 5
16	0	66	0 to 5
17	0 to 5	67	0 to 5
18	0 to 5	68	0 to 5
19	0 to 5	69	0 to 5
20	0 to 5	70	0 to 5
21	0	71	0 to 5
22	0	72	0 to 5
23	0 to 5	73	0 to 5
24	0 to 5	74	0 to 5
25	0 to 5	75	0 to 5
26	0 to 5	76	0 to 5
27	0 to 5	77	0 to 5
28	0	78	0 to 5
29	0	79	0 to 5
30	0	80	0 to 5
31	5	81	0
32	5	82	5
33	5	83	0
34	0	84	0
35	0	85	4.9
36	0	86	0
37	0	87	0
38	5	88	5
39	1.6 to 3.7	89	0
40	1.2 to 3.8	90	5
41	0	91	5
42	5	92	5
43	0 to 5	93	5
44	4.8	94	5
45	0 to 5	95	5
46	0 to 5	96	5
47	0 to 5	97	5
48	0 to 5	98	5
49	0 to 5	99	5
50	0 to 5	100	0 to 5

IC303(μPD6383GF)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5	51	0 to 5
2	4.9	52	0 to 5
3	4.6	53	0 to 5
4	0 to 5	54	0 to 5
5	0	55	0 to 5
6	0	56	0 to 5
7	0	57	0 to 5
8	5	58	0 to 5
9	4.9	59	0 to 5
10	4.9	60	0 to 5
11	5	61	0 to 5
12	5	62	0 to 5
13	5	63	5
14	5	64	0
15	5	65	0 to 5
16	0	66	0 to 5
17	0 to 5	67	0 to 5
18	0 to 5	68	0 to 5
19	0 to 5	69	0 to 5
20	0 to 5	70	0 to 5
21	0	71	0 to 5
22	0	72	0 to 5
23	0 to 5	73	0 to 5
24	0 to 5	74	0 to 5
25	0 to 5	75	0 to 5
26	0 to 5	76	0 to 5
27	0 to 5	77	0 to 5
28	0	78	0 to 5
29	0	79	0 to 5
30	0	80	0
31	5	81	0
32	0	82	5
33	0	83	0
34	0	84	0
35	0	85	0
36	0	86	0
37	0	87	0
38	5	88	0
39	1.6 to 3.7	89	0
40	1.2 to 3.8	90	5
41	0	91	5
42	5	92	5
43	0 to 5	93	5
44	0 to 5	94	5
45	0 to 5	95	5
46	0 to 5	96	5
47	0 to 5	97	0
48	0 to 5	98	5
49	0 to 5	99	0
50	0 to 5	100	0 to 5

IC402(PCM1700P-L)

Pin No.	Voltage (V)
1	– 4.9
2	– 1.5
3	– 4.5
4	0
5	3.2
6	0
7	0
8	0
9	– 2.5 to 2.5
10	0
11	5
12	0 to 5
13	0 to 5
14	– 4.9
15	3.7
16	0 to 5
17	0
18	0
19	– 2.5 to 2.5
20	0
21	0
22	0
23	3.2
24	– 4.4
25	– 1.5
26	– 4.1
27	5
28	0

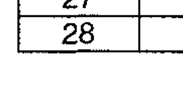
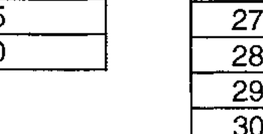
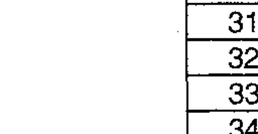
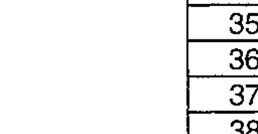
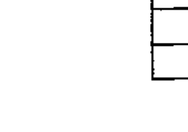
IC701(PD4670C)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	– 28.3 to – 27.9	41	4.9
2	– 28.3 to – 27.8	42	5
3	– 28.3 to – 27.8	43	5
4	– 28.3 to – 27.9	44	5
5	– 28.3 to – 27.9	45	5
6	– 28.6 to – 28.2	46	0 to 5
7	– 28.4 to – 28.0	47	0 to 5
8	5	48	0
9	0	49	5
10	0	50	5
11	5	51	0
12	5	52	5
13	0	53	0
14	0 to 5	54	0
15	0 to 5	55	5
16	0 to 5	56	4.9
17	5	57	0 to 5
18	5	58	0
19	5	59	0
20	0	60	0
21	0	61	0
22	2.5	62	0
23	0 to 5	63	– 28.1 to – 27.7
24	0 to 5	64	– 24.6 to – 0.5
25	0	65	– 21.1 to 0
26	5	66	– 17.2 to 0.1
27	2.5	67	– 23.8 to 0.1
28	2.5	68	– 27.1 to – 8.7
29	5	69	– 27.8 to 1.9
30	5	70	– 30.9 to – 3.4
31	4.9	71	– 31.2
32	0	72	– 18.1 to – 14.2
33	0	73	– 21.1 to – 14.3
34	0 to 4.4	74	– 27.7 to – 8.4
35	– o.4 to 5.2	75	– 20.8 to – 11.8
36	5	76	– 18.3 to – 18.1
37	5	77	– 28.7 to – 28.2
38	5	78	– 28.6 to – 28.2
39	4.9	79	– 28.6 to – 28.3
40	5	80	– 28.4 to – 28.0

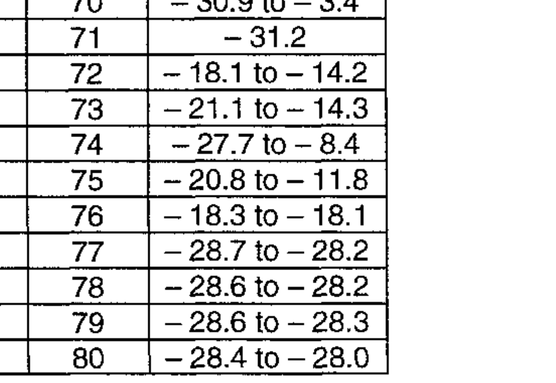
3. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

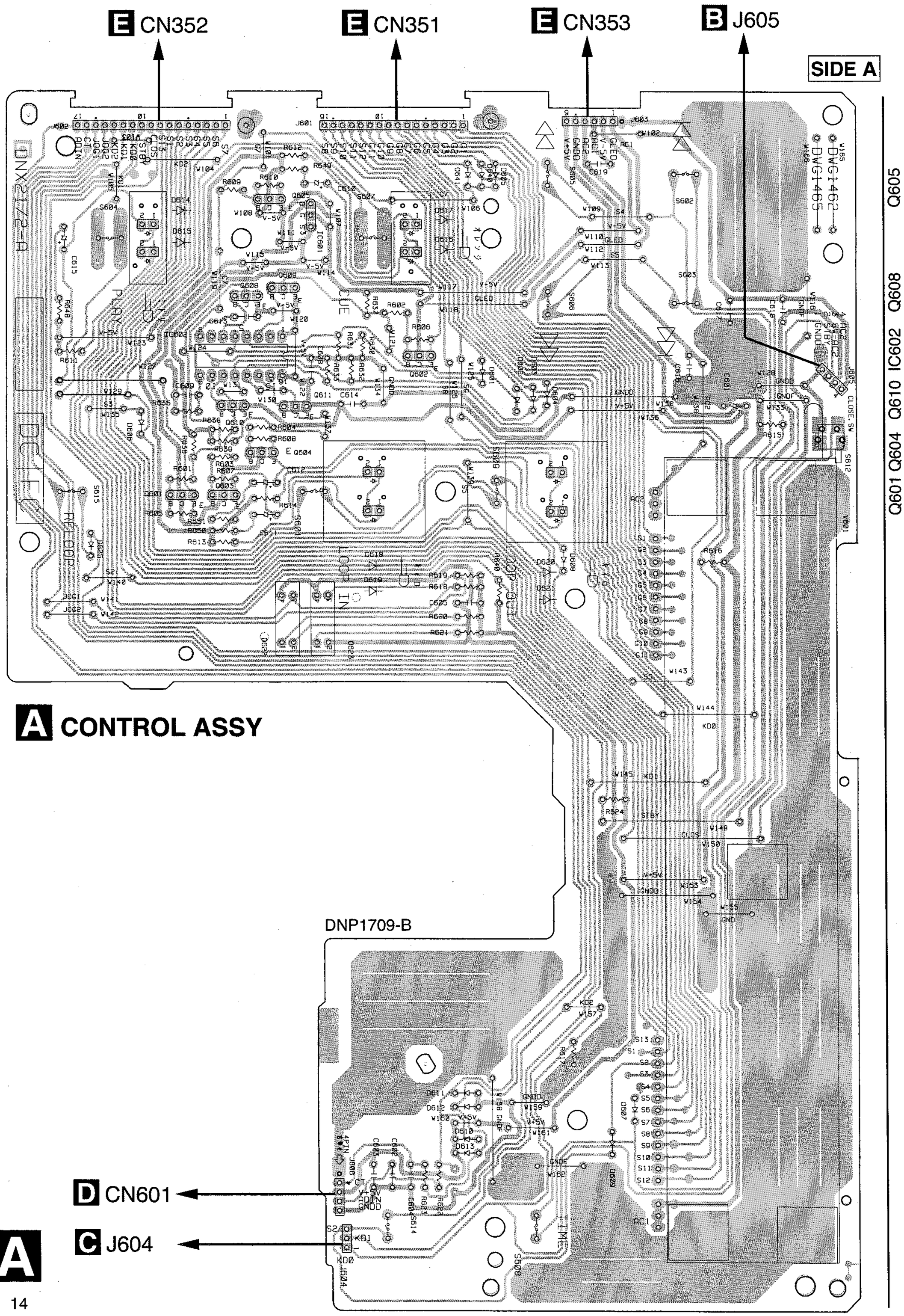
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further infromation for respective destinations, be sure to check with the schematic diagram.
4. Viewpoint of PCB diagrams



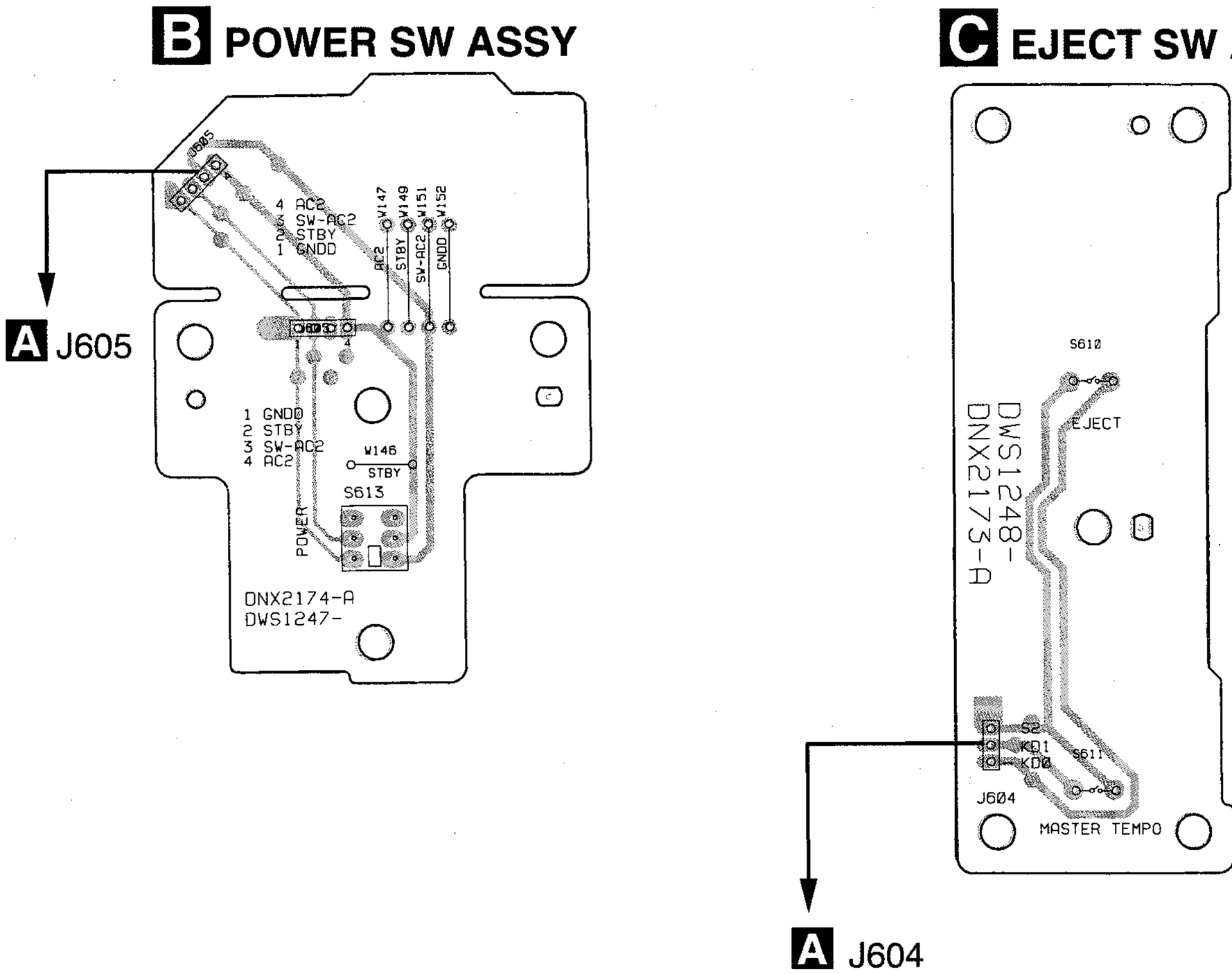
5. The parts mounted on each PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.

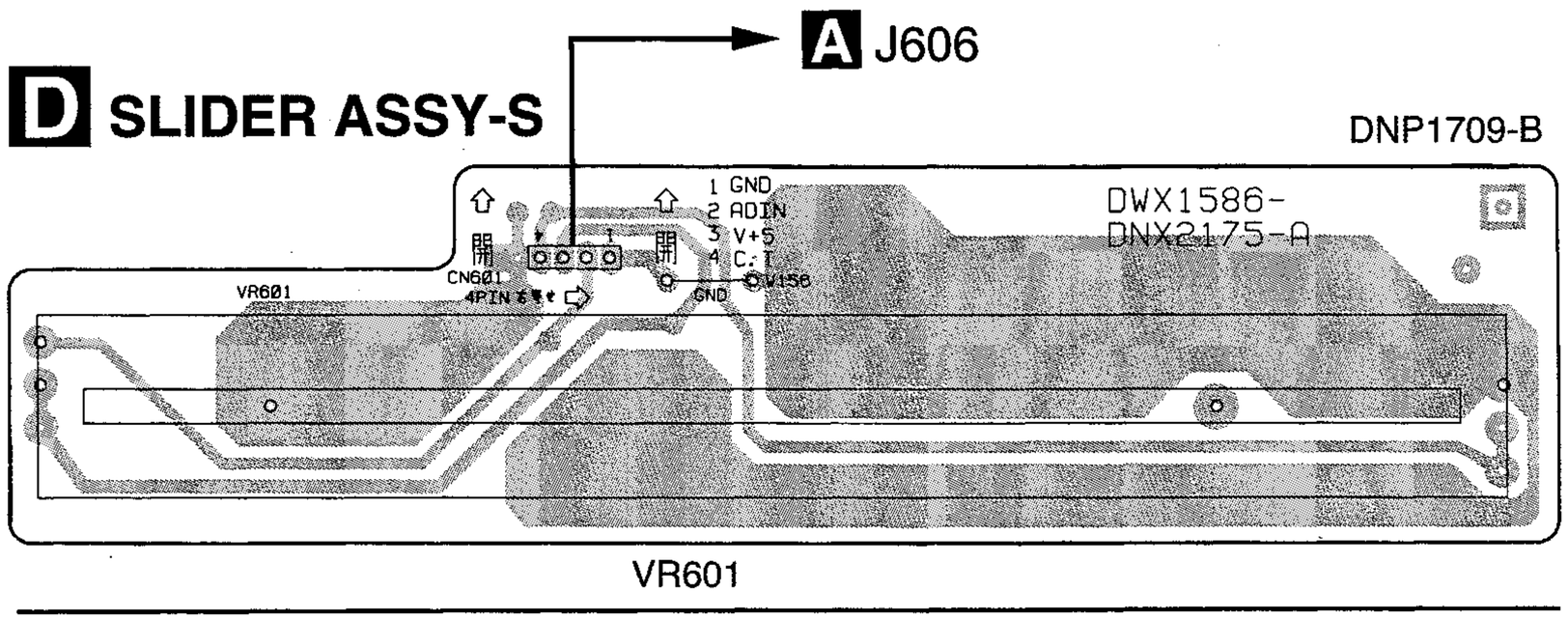
3.1 CONTROL ASSY



3.2 POWER SW ASSY, EJECT SW ASSY AND SLIDER ASSY-S

SIDE A





3.3 MAIN BOARD ASSY AND AUDIO OUT ASSY

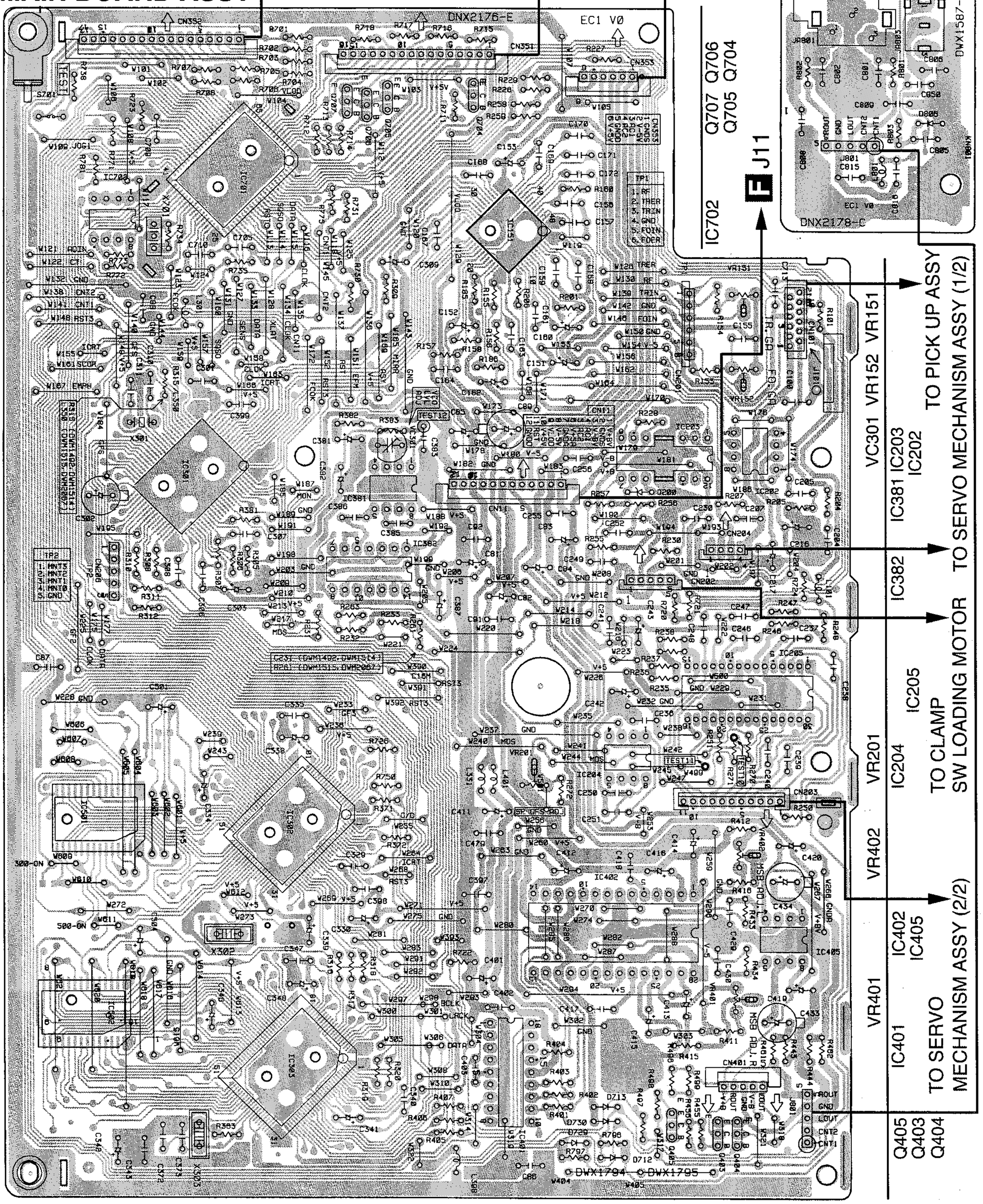
E

MAIN BOARD ASSY

G

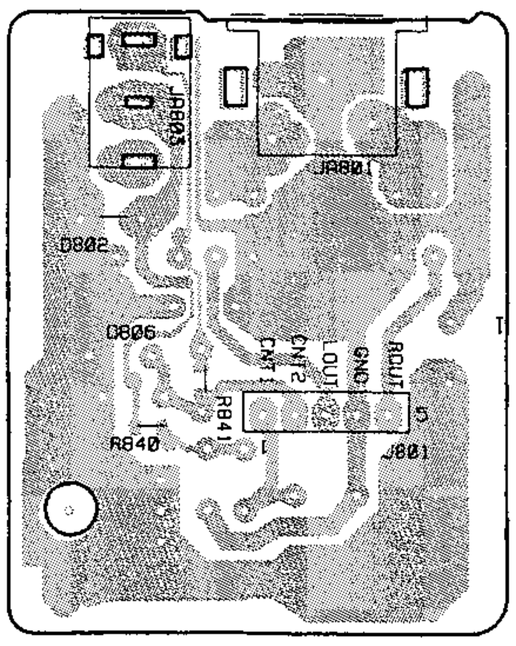
AUDIO OUT ASSY

SIDE A



DNP1708-E

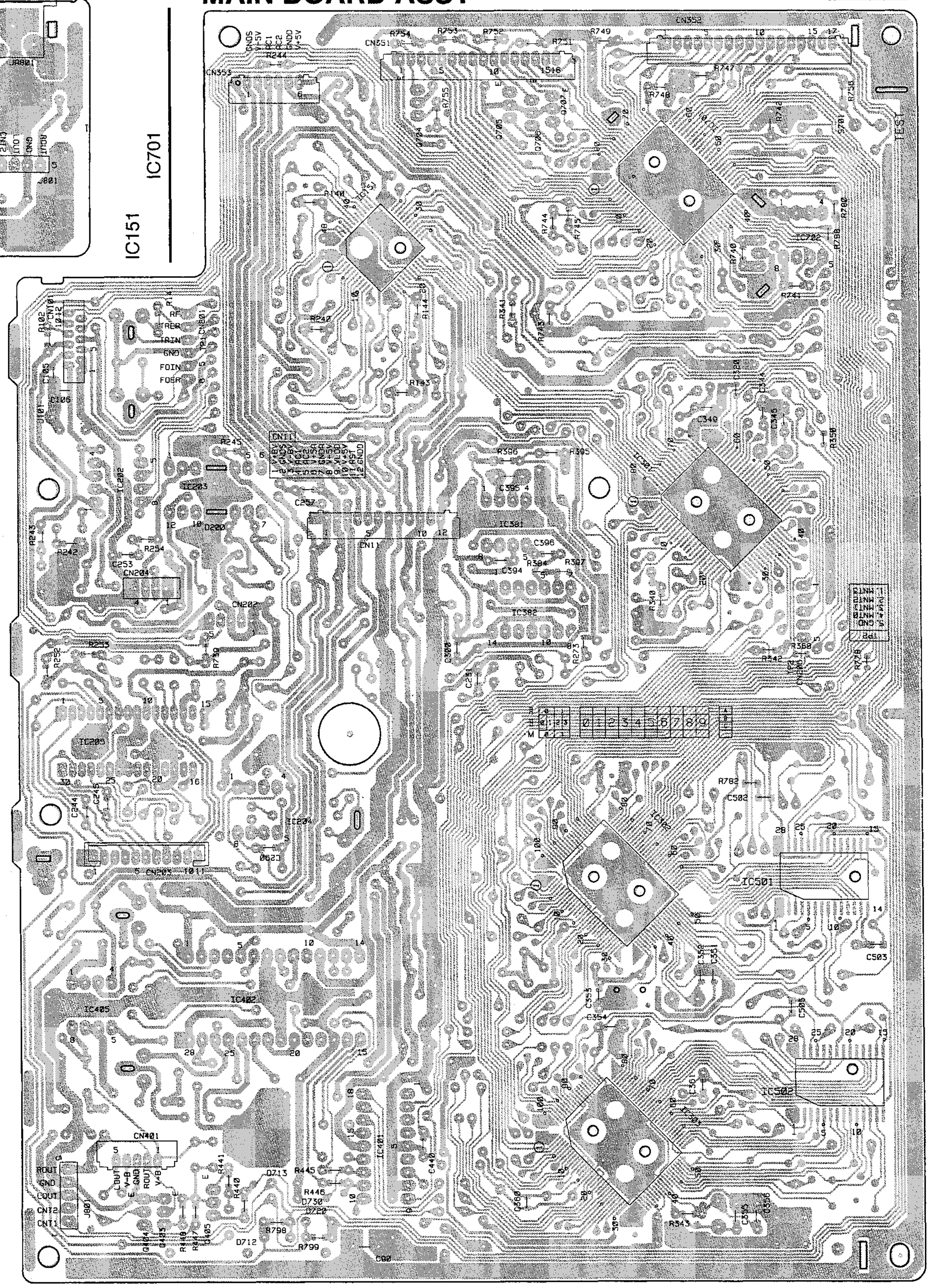
G
AUDIO OUT ASSY



E
MAIN BOARD ASSY

SIDE B

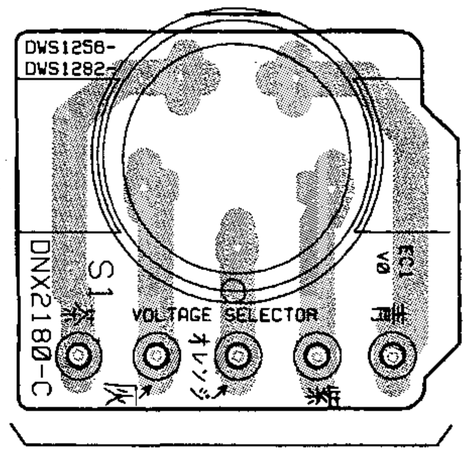
IC151 IC701 IC301 IC302 IC501 IC502 IC303



3.4 TRANSFORMER BOARD ASSY, REGULATOR UNIT AND VOLTAGE SELECTOR BOARD ASSY

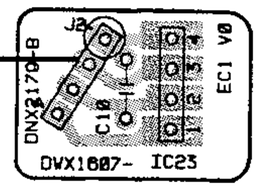
SIDE A

I VOLTAGE SELECTOR BOARD ASSY



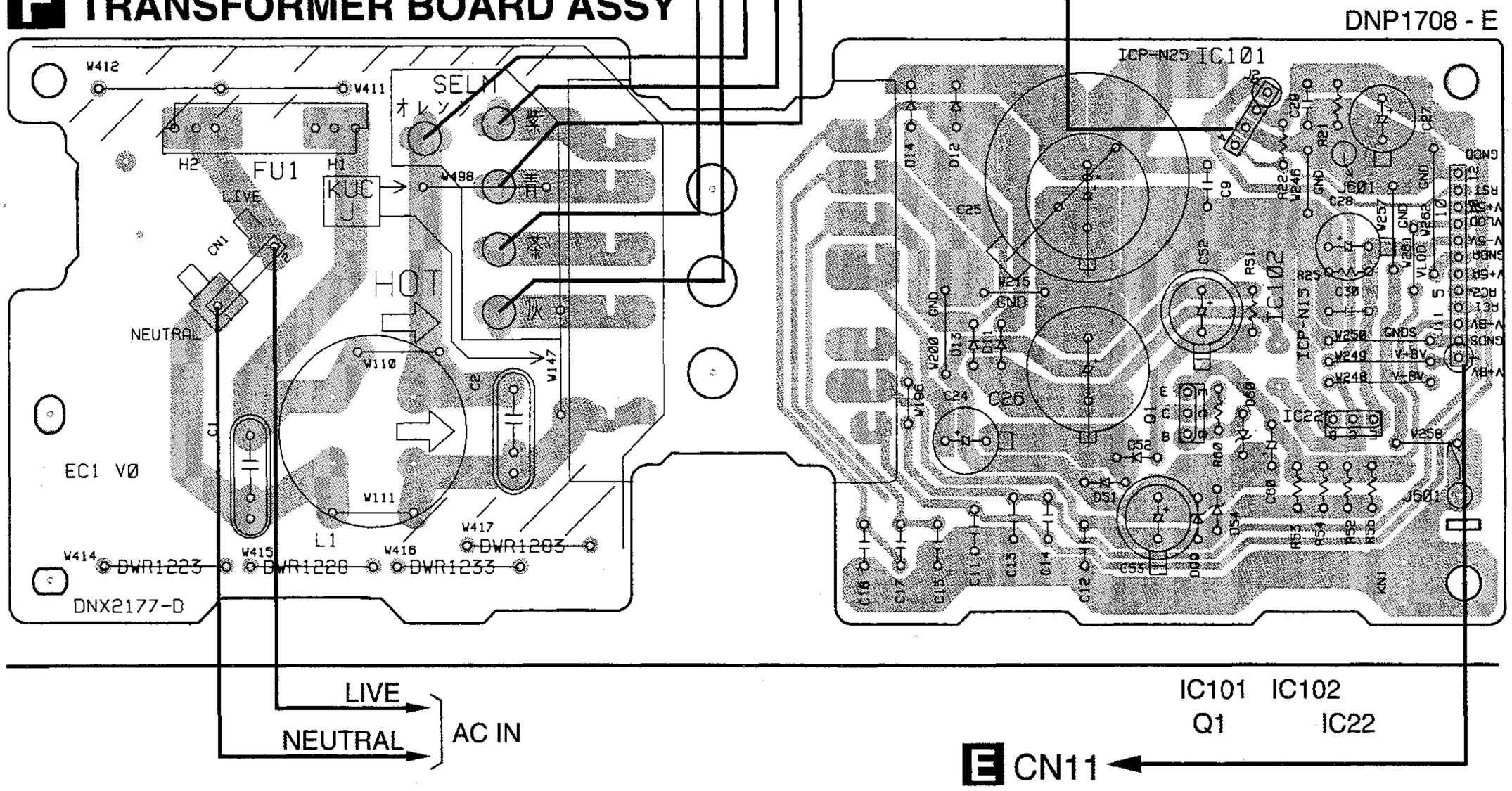
POWER TRANSFORMER

H REGULATOR UNIT



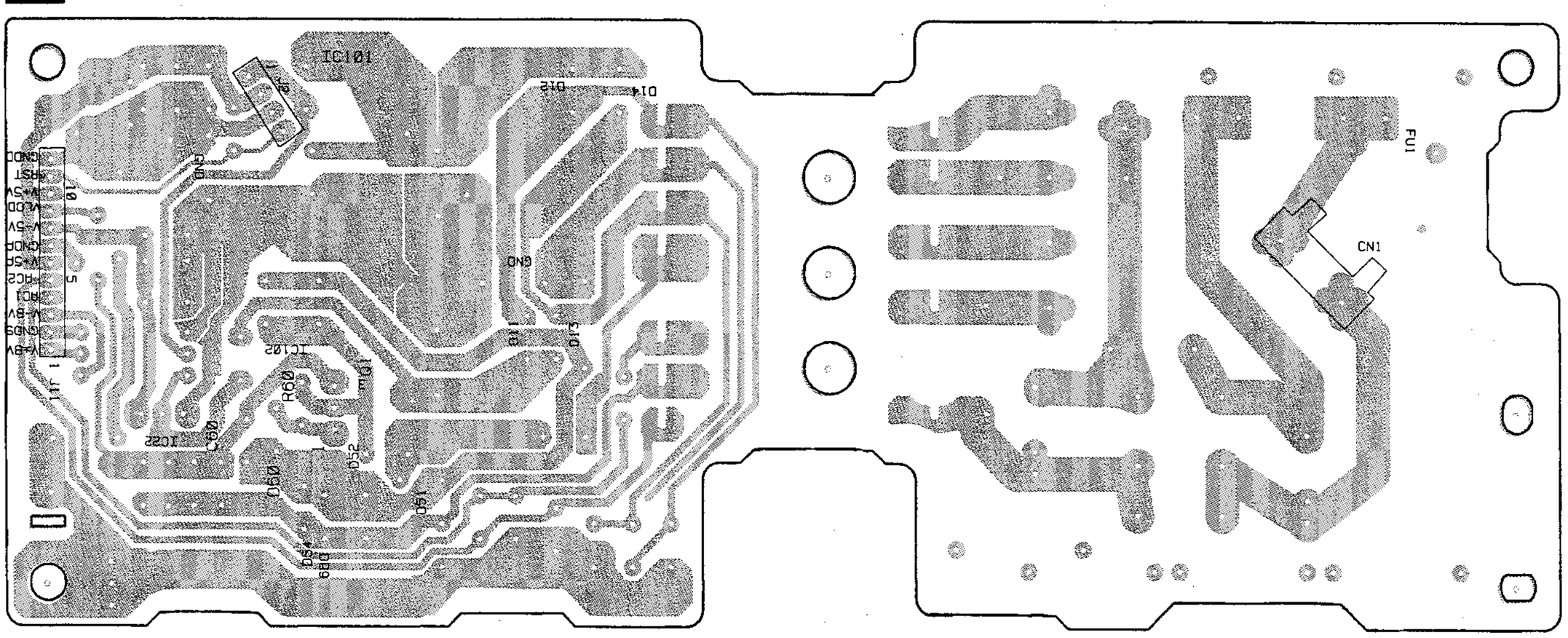
IC23

F TRANSFORMER BOARD ASSY



SIDE B

F TRANSFORMER BOARD ASSY



4. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU561J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU473J
0.5 Ω → R50 ..... RN2HR50K
1 Ω → 1R0 ..... RS1P1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC5621F

Mark	No.	Description	Part No.

LIST OF ASSEMBLIES

NSP	MOTHER BOARD ASSY	DWM1492
	├ TRANSFORMER BOARD ASSY	DWR1223
	├ AUDIO OUT ASSY	DWX1587
	├ MAIN BOARD ASSY	DWX1794
NSP	├ REGULATOR UNIT	DWX1607
NSP	└ VOLTAGE SELECTOR BOARD ASSY	DWS1256
NSP	SUB BOARD ASSY	DWX1585
	├ CONTROL ASSY	DWG1462
NSP	├ POWER SW ASSY	DWS1247
NSP	├ EJECT SW ASSY	DWS1248
	└ SLIDER ASSY-S	DXX2225

F TRANSFORMER BOARD ASSY

SEMICONDUCTORS

⚠	IC102	ICP-N15
⚠	IC101	ICP-N25
⚠	IC22	NJM79M05FA
⚠	Q1	2SB1566
	D54	MTZJ22A
	D60	MTZJ33B
⚠	D11-D14, D51, D52	S5688G

COILS AND FILTERS

⚠	L1	DTL1016

CAPACITORS

⚠	C1, C2 (0.01μF/250V)	ACG7005
	C60	CEAS220M50
	C24, C53	CEAS221M50
	C27, C28	CEAS471M10
	C11, C13-C17	CKCYF473Z50
	C25 (18000μF/16V)	DCH1069
	C52 (100μF/100V)	DCH1070
	C26 (10000μF/16V)	VCH1054

RESISTORS

	All Resistors	RD1/4PU□□□J

OTHERS

⚠	LEAD WIRE UNIT (BRN)	DDF1001
⚠	LEAD WIRE UNIT (ORG)	DDF1002
⚠	LEAD WIRE UNIT (GRY)	DDF1003
⚠	LEAD WIRE UNIT (VLT)	DDF1004
⚠	LEAD WIRE UNIT (BLU)	DDF1005
	TERMINAL	RKC-061
H1, H2	FUSE HOLDER	RKR1003
KN1	EARTH METAL FITTING	VNF1084

G AUDIO OUT ASSY

SEMICONDUCTORS

	D806	1SS254

COILS AND FILTERS

⚠	L801	LAU1R5J

CAPACITORS

	C950	CGCYX473M25
	C805, C808	CKCYF103Z50
	C809	CKCYF473Z50
⚠	C801, C802	CQMA152J50

RESISTORS

	R801, R802	RD1/4PU471J
	Other Resistors	RS1/10S□□□J

OTHERS

JA801	2P PIN JACK	PKB1009
JA803	REMOTE CONTROL JACK	RKN1004
KN801	EARTH METAL FITTING	VNF1084

E MAIN BOARD ASSY

SEMICONDUCTORS

IC381	BA7042
IC151	CXA1372Q
IC301	CXD2500BQ
IC501	HM514800CLTT-7
IC202	LA6517
IC203	LA6520

Mark	No.	Description	Part No.
	IC205		LB1687
	IC502		LH52256AN-70LL
	IC204, IC405		NJM4558DX
	IC402		PCM1700P-L
	IC701		PD4670C
	IC401		SM5841CP
	IC702		ST24C01CB1
	IC382		TC74HCU04AP
	IC302, IC303		UPD6383GF
	Q704-Q707		2SC2458
	Q403, Q404		2SD2144S
	Q405		DTC124ES
	D712, D713, D729, D730		1SS254

COILS AND FILTERS

L101		LFA100J
L301		LFA100K

SWITCHES AND RELAYS

S701		PSG1006

CAPACITORS

C344, C345		CCSQCH150J50
C351, C352, C355, C356		CCSQCH5R0C50
C151-C153, C387, C401		CEAS101M10
C81, C82, C85		CEAS101M10
C83, C84		CEAS101M16
C89		CEAS101M50
C433, C434		CEAS220M25
C216, C217, C303, C330, C334		CEAS330M16
C338, C339, C341, C346, C348		CEAS330M16
C411, C412, C501, C504		CEAS330M16
C382, C415, C416		CEAS3R3M50
C242, C243, C381, C413, C414		CEAS470M50
C302		CEAS471M6R3
C160, C162		CEAS4R7M50
C309		CEASR47M50
C161		CFTXA104J50
C383		CFTXA474J50
C157, C164, C169, C308, C399		CGCYX103K25
C158, C159, C163, C236, C241		CGCYX104K25
C246-C248		CGCYX104K25
C156, C168		CGCYX333K25
C307, C329, C705		CGCYX473K25
C306, C417, C418		CKCYB152K50
C155		CKCYB182K50
C170		CKCYB332K50
C171, C172		CKCYB472K50
C167, C204, C205, C230		CKCYF103Z50
C237, C238, C250, C251, C255		CKCYF103Z50
C335, C340, C398, C402		CKCYF103Z50
C419, C420, C479, C713		CKCYF103Z50
C709, C710		CKPUYF103Z25
C231		CKSQYB683K25
C396		CKSQYF102Z50
C244, C245, C253, C257, C300		CKSQYF103Z50

Mark	No.	Description	Part No.
	C320, C353, C354, C360, C361		CKSQYF103Z50
	C394, C440, C502, C503, C505		CKSQYF103Z50
	C349		CKSQYF104Z50
	C105, C106		CKSQYF473Z50
	C429, C430		CQMA152J50
	VC301		VCM1002

RESISTORS

R237 (0.47Ω)		DCN1035
R350, R368, R778, R782		RS1/10S0R0J
R102, R440, R745, R788		RS1/10S103J
R244, R341, R384		RS1/10S104J
R740		RS1/10S105J
R141		RS1/10S153J
R441		RS1/10S182J
R240		RS1/10S184J
R744		RS1/10S202J
R755		RS1/10S221J
R739, R741, R751-R754, R756		RS1/10S223J
R780		RS1/10S223J
R245		RS1/10S224J
R743		RS1/10S244J
R140		RS1/10S274J
R340		RS1/10S332J
R144		RS1/10S333J
R143		RS1/10S334J
R242, R243, R254		RS1/10S470J
R342, R397, R445-R448		RS1/10S471J
R396		RS1/10S472J
VR151, VR152 (22 kΩ)		RCP1046
VR401, VR402 (100 kΩ)		RCP1048
VR201		VRTS6VS221
Other Resistors		RD1/4PU□□□J

OTHERS

CN101	FPC CONNECTOR	12FMZ-ABT
CN204	MT CONNECTOR 4P	173981-4
CN353	6P JUMPER CONNECTOR	52147-0610
CN11	12P JUMPER CONNECTOR	52147-1210
CN352	17P JUMPER CONNECTOR	52147-1710
CN201	6P TOP POST	B6P-SHF-1AA
X302, X303	CERAMIC RESONATOR (24.576 MHz)	DSS1054
X301	CRYSTAL RESONATOR (16.9344 MHz)	PSS1008
	PCB BINDER	VEF1040
X701	CERAMIC RESONATOR (4.19 MHz)	VSS1014

H REGULATOR UNIT

SEMICONDUCTORS

⚠	IC23	PQ05RR12

I VOLTAGE SELECTOR BOARD ASSY

OTHERS

⚠	VOLTAGE SELECTOR SWITCH	DSB1014

Mark	No.	Description	Part No.

A CONTROL ASSY

SEMICONDUCTORS

	IC602	TC74HC175AP
	Q601-Q604	2SC2458
	Q608-Q611	DTA124ES
	D601-D613, D625	1SS254
	D618-D621	GL3HY43
	D614, D615	GL5EG8
	D616, D617	GL5HY8
	D622, D623	GP1S53V

SWITCHES AND RELAYS

	S602, S603, S605, S606	ASG1034
	S612	DSG1016
	S604, S607	DSG1046
	S601, S609, S615	DSG1056
	S608	PSG1006

CAPACITORS

	C601	CEAL101M6R3
	C620	CEAS2R2M50
	C602-C605, C608, C609	CKCYF103Z50
	C613, C614	CKCYF103Z50

RESISTORS

	All Resistors	RD1/4PU□□□J

OTHERS

J604	3P JUMPER WIRE	D20PWW0315E
J605	4P JUMPER WIRE	D20PWW0415G
V601	FL INDICATOR TUBE	DEL1028
J606	CONNECTOR	PF04PG-D05
	FL SPACER	VEB1129

B POWER SW ASSY

SWITCHES AND RELAYS

	S613	PSG1007

C EJECT SW ASSY

SWITCHES AND RELAYS

	S610, S611	PSG1006

D SLIDER ASSY-S

OTHERS

CN601	KR CONNECTOR	S4B-PH-K-S

5. ADJUSTMENT

CDJ-500II/SL and CDJ-500G/KUC have the same construction except for the following:

● Test Point and Adjustment Variable Resistor Positions

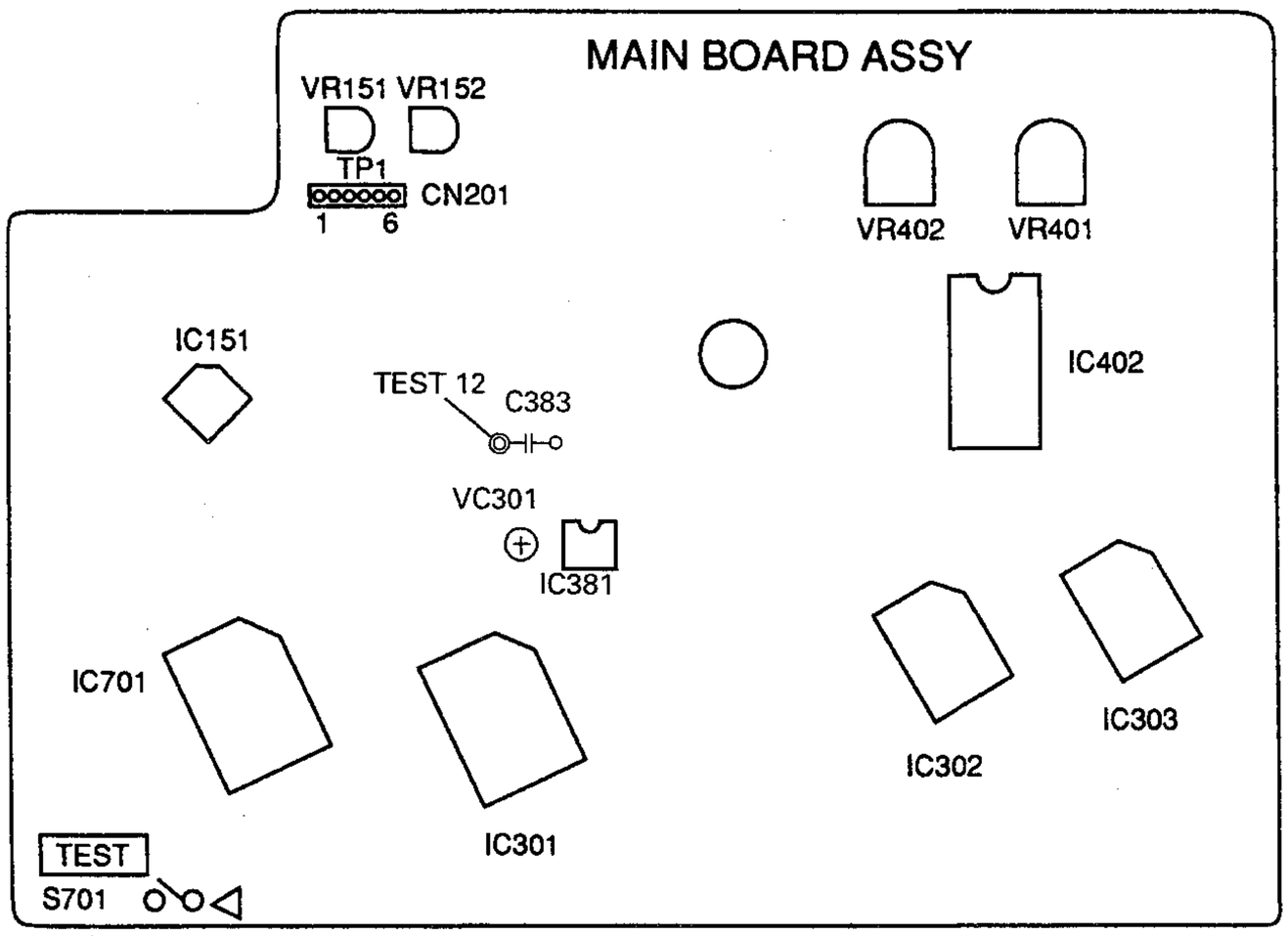


Figure 1. Adjustment Locations

● Notes

1.Use a 10:1 probe for the oscilloscope.
2.All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

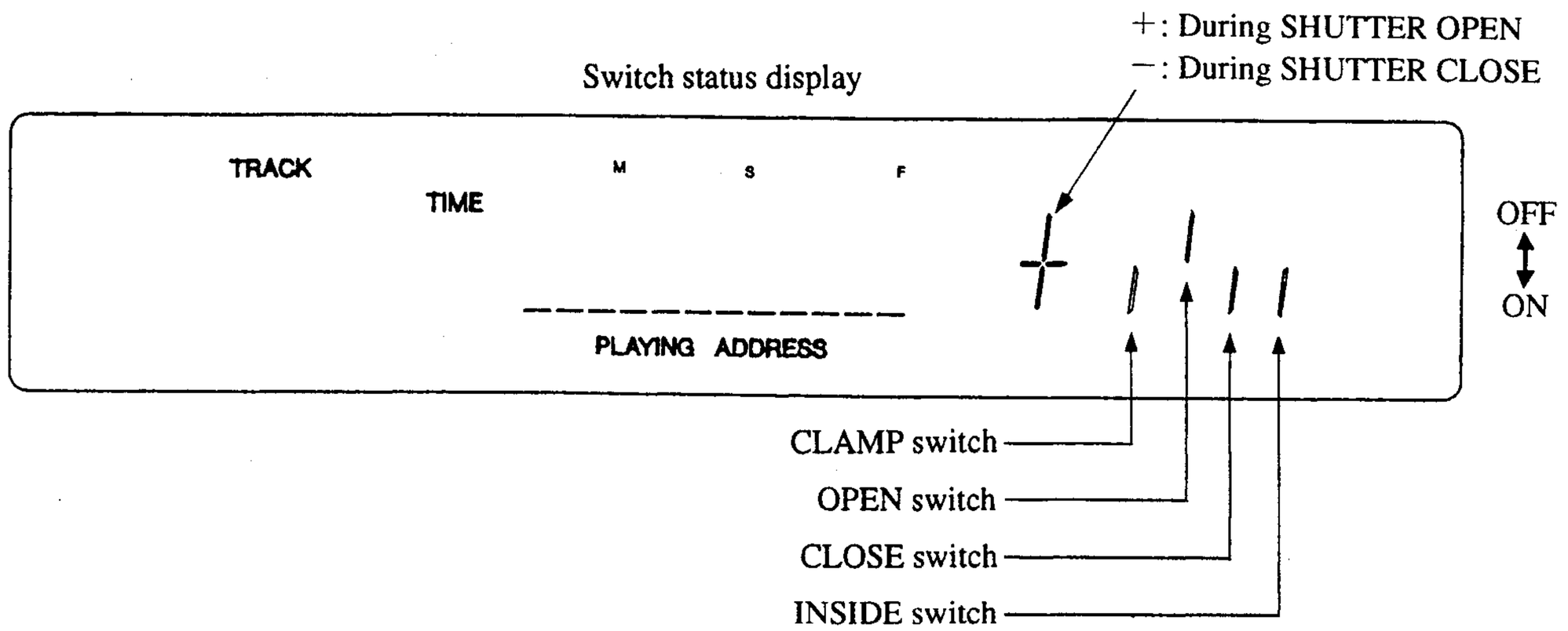
This model has a test mode so that the adjustments and checks required for service can be carried out easily. When this model is in test mode, the keys on the control panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For this model,all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.
1.Turn off the power switch.
2.Close the door while pressing the test mode switch (S701) on the MAIN BOARD ASSY. (See figure 1.)
3.Turn on the power switch.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on.If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1-3.

The display (FL indicator) is as follows when the test mode is entered.
The TEMPO display is as follows. Switches flipped down are ON, and switches flipped up are OFF. The switches are arranged from left to right: CLAMP switch, OPEN switch, CLOSE switch and INSIDE switch. When the SHUTTER switch is OPEN, "+" is displayed. When the SHUTTER switch is CLOSE, "−" is displayed.



[Release from test mode]

Here is the procedure for releasing the test mode:

1.Press the CUE key to stop all operations. But the pick-up will not return to INSIDE.

2.Turn off the power switch

● VCO Adjustment

Mode	Adjusting Points	Measurement Points	Adjustment Value	Remarks
Power ON (STOP)	VC301	TEST 12 (C383) or IC381-Pin 1	2.5 ± 0.2 V (DC Voltage)	

6. GENERAL INFORMATION

6.1 PARTS

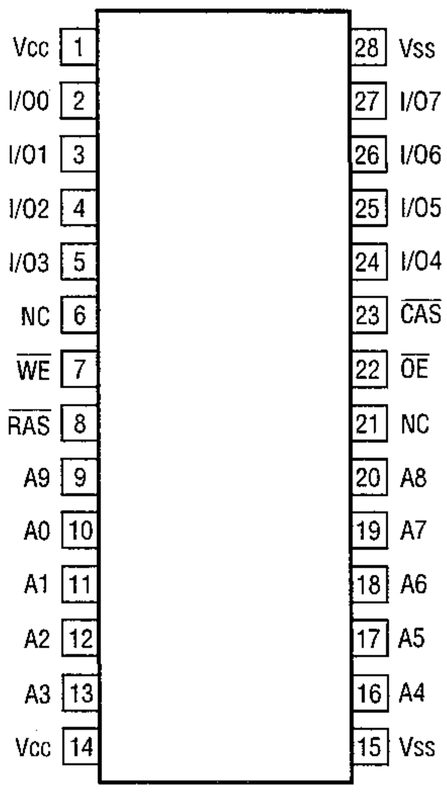
6.1.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in schematic diagrams.

■ HM514800CLTT-7 (MAIN BOARD ASSY : IC501)

• 524288-word x 8-bit CMOS Dynamic RAM

• Pin Arrangement



(Top view)

• Pin Function

Pin Name	Function	Pin Name	Function
A0 to A9	Address input (Row/refresh A0 to A9) (Column A0 to A8)	$\overline{WE}$	Read/write enable
I/O0 to I/O7	Data input/output	$\overline{OE}$	Output enable
$\overline{RAS}$	Row address strobe	Vcc	Power supply
$\overline{CAS}$	Column address strobe	Vss	GND

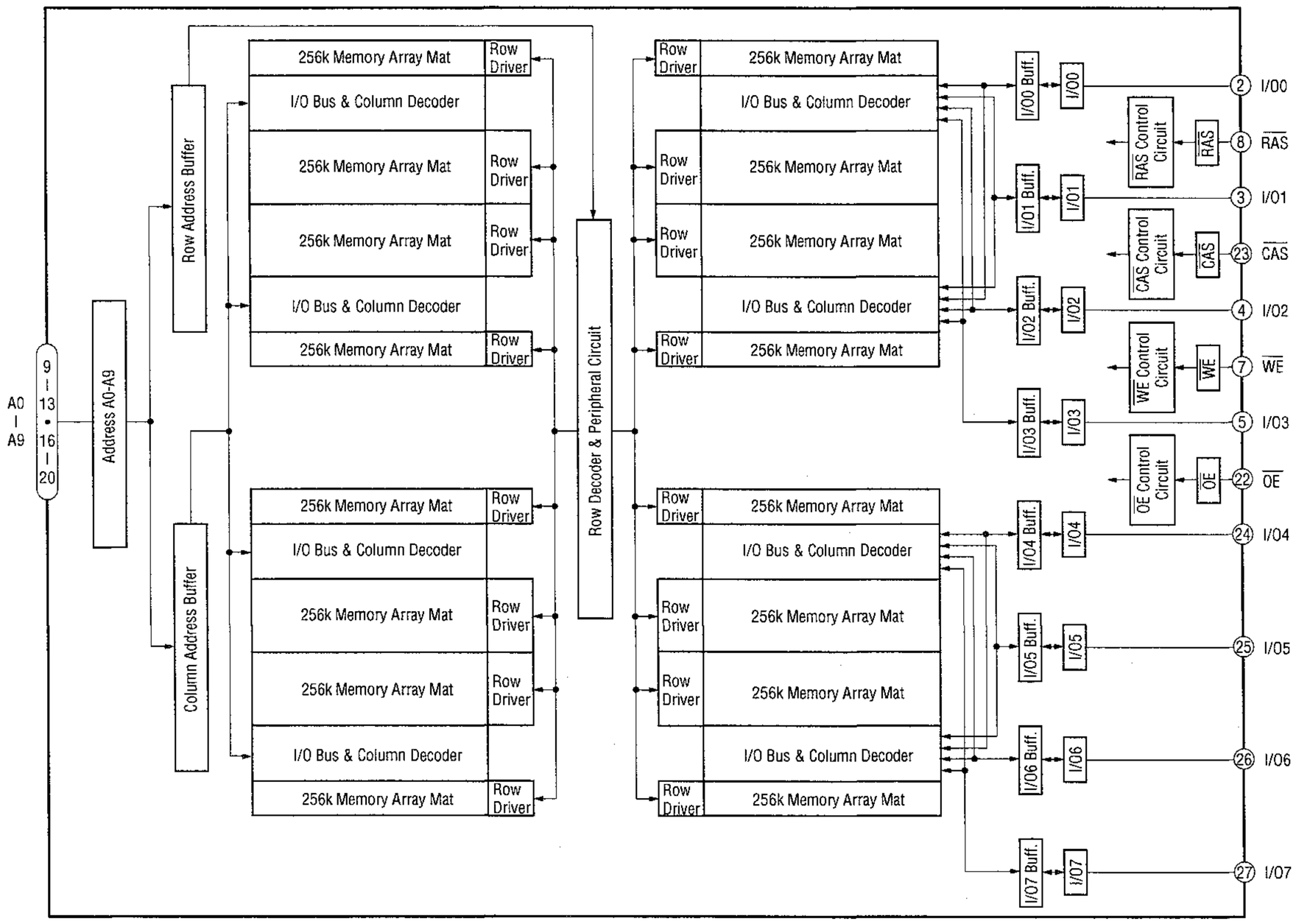
• Operation Mode

Input				Output	Operation Mode
$\overline{RAS}$	$\overline{CAS}$	$\overline{WE}$	$\overline{OE}$		
H	H	D	D	Open	Standby
H	L	H	L	Valid	Standby
L	L	H	L	Valid	Read cycle
L	L	L*2	D	Open	Early write cycle
L	L	L*2	H	Undefined	Delayed write cycle
L	L	H to L	H to L	Valid	Read modify write cycle
L	H	D	D	Open	$\overline{RAS}$ only refresh cycle
H to L	L	D	D	Open	$\overline{CAS}$ before $\overline{RAS}$ refresh cycle
L	H to L	H	L	Valid	High-speed page mode read cycle
L	H to L	L*2	D	Open	High-speed page mode early write cycle
L	H to L	L*2	H	Undefined	High-speed page mode delayed write cycle
L	H to L	H to L	L to L	Valid	High-speed page mode read modify write cycle
L	L	H	H	Open	Read cycle (output disable)

[Note] 1. H : High (inactive), L : Low (active), D : H or L

2. twcs $\geqq$ 0 ns : Early write cycle, twcs < 0 ns : Delayed write cycle

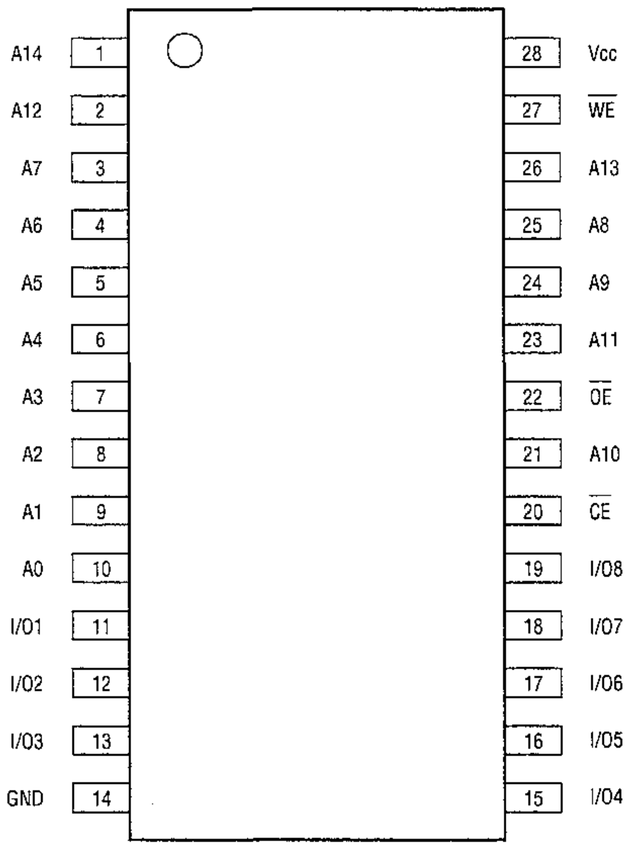
• Block Diagram



■ LH52256AN-70LL (MAIN BOARD ASSY : IC502)

• Pin Arrangement

(Top View)



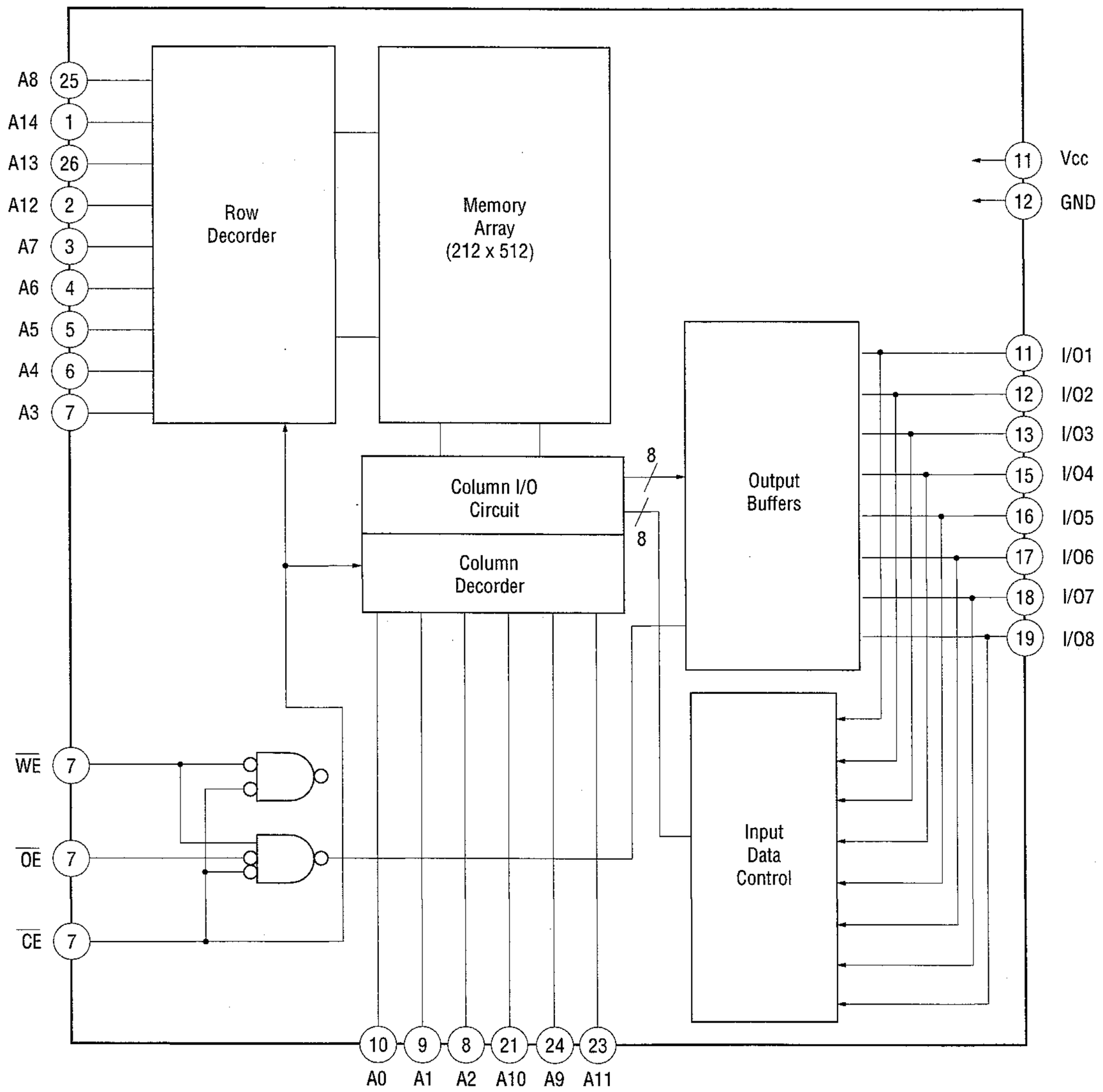
• Pin Function

Pin Name	Function
A0 to A14	Address Inputs
WE	Write Enable Input
CS	Chip Select
OE	Output Enable Lnput
I/O1 to I/O8	Data input/Output
Vcc	Power
Vss	Groud

• Operation Mode

$\overline{CE}$	$\overline{WE}$	$\overline{OE}$	Mode	I/O1 to I/O8	Power supply current
H	*	*	Standby	High impedance	Standby(I_{SB})
L	L	*	Write	Data input	Operation(I cc)
L	H	L	Read	Data output	Operation(I cc)
L	H	H	Output disable	High impedance	Operation(I cc)

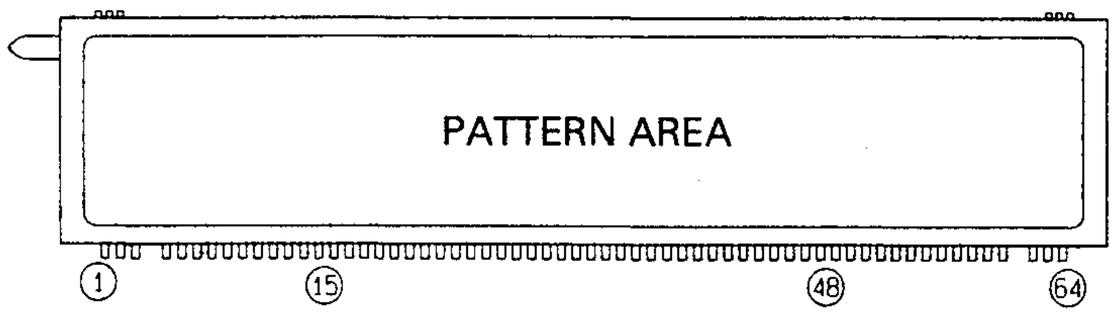
• Block Diagram



6.1.2 DISPLAY

■ DEL1028 (V601 : CONTROL ASSY)

● Outline Diagram



● Pin Assignment

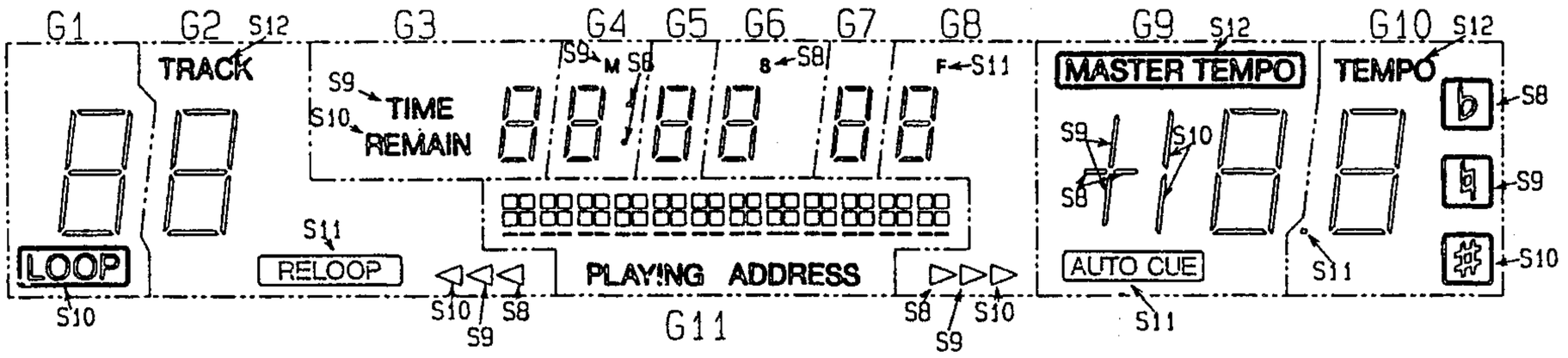
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Assignment	F	F	F	NP	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10

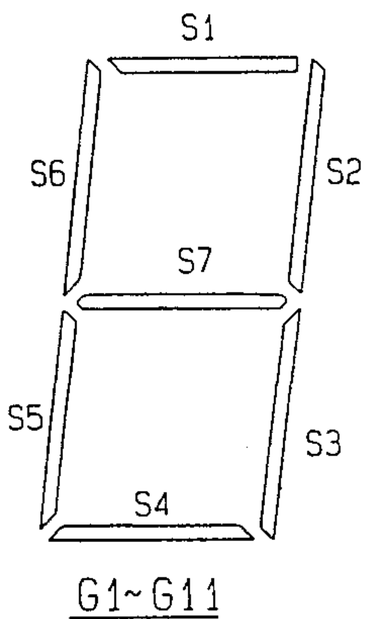
Pin No.	15	16 ~ 47	48	49	50	51	52	53	54	55	56	57	58
Assignment	G11	NP	S13	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10

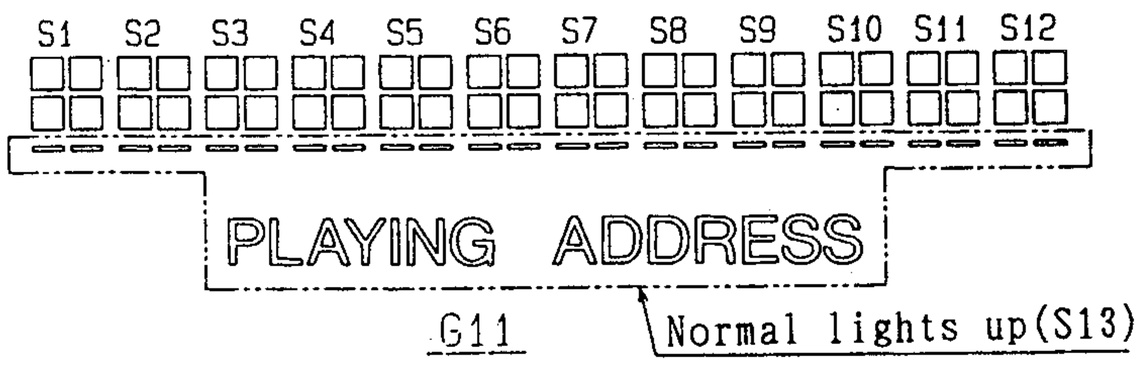
Pin No.	59	60	61	62	63	64
Assignment	S11	S12	NP	F	F	F

F:Filament G1~G11:Grid S1~S13:Anode NP:No pin

● Anode Grid Assignment







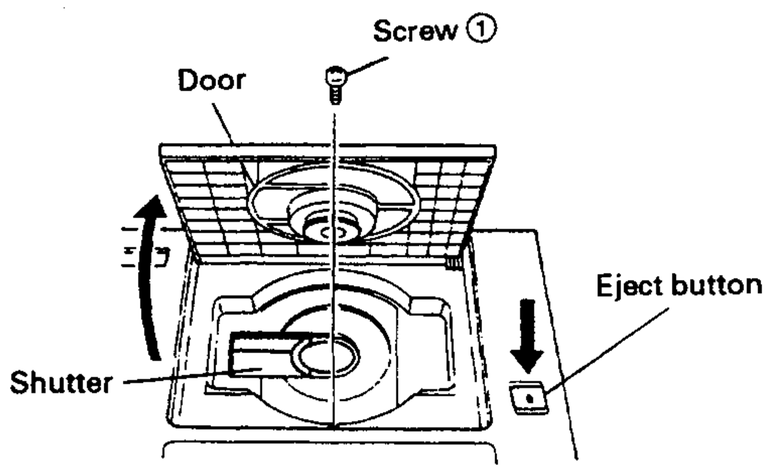
● Anode Grid Assignment and Pin Assignment

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	
S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	
S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	
S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	
S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	
S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	
S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	
S8		◁		• •		S		▷	+	b	
S9		◁	TIME	M				▷	+	q	
S10	LOOP	◁	REMAIN					▷		#	
S11		RELOOP						F	AUTO CUE	∘	
S12		TRACK							MASTER TEMPO	TEMPO	
S13											PLAYING ADDRESS

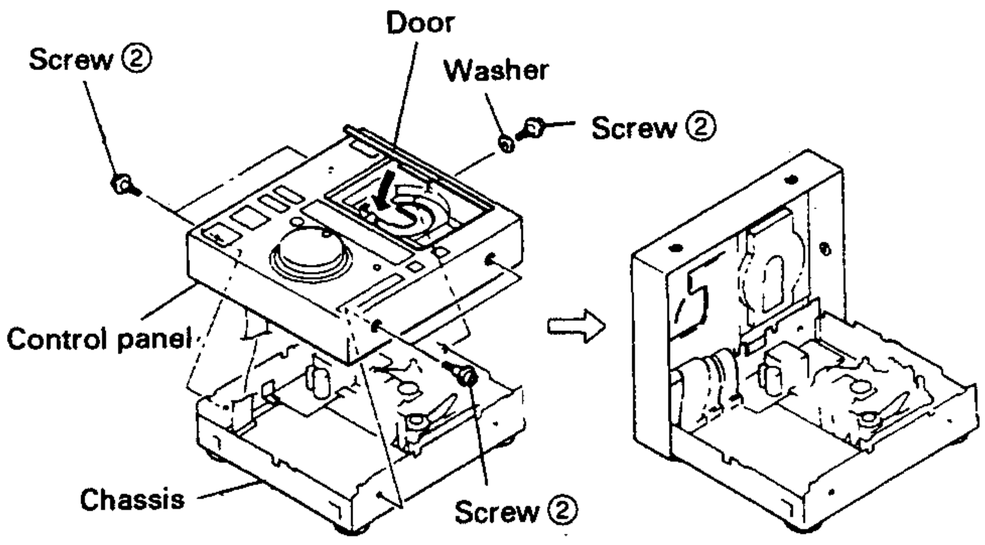
6.2 DISASSEMBLY

■ Removing the Control Panel

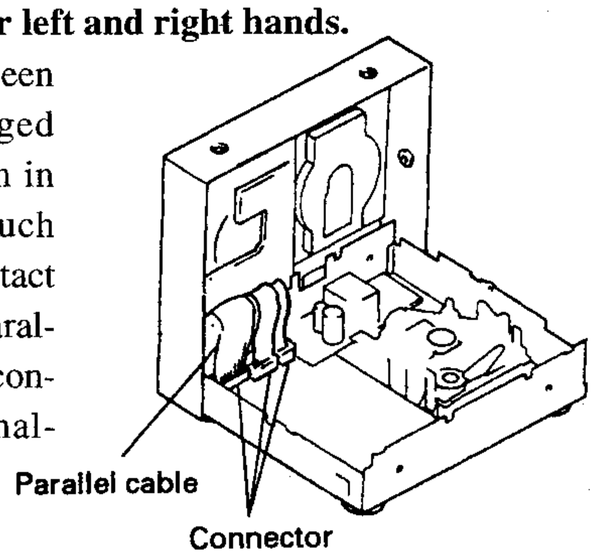
1. Turn on the power supply, and open the door using the eject button. (Note 1)
2. Pull out the power plug from the outlet.
3. Remove one screw ① at the bottom of the door.



4. Remove the five screws ② at the side of the control panel. (Note 2)
5. Check that the shutter closes, and remove the control panel from the chassis.
6. Insert the control panel into the bottom of the chassis, and fix it.



7. **When pulling out the parallel cable from the connector during maintenance, etc., be sure to disconnect the power plug from the outlet and pull the parallel cable straight out from the two sides using your left and right hands.**
(Even if the power has been turned off, some charged voltage will still remain in the capacitor, etc. If such cases, the accidental contact of the electrode of the parallel cable and that of the connector will result in malfunction.)

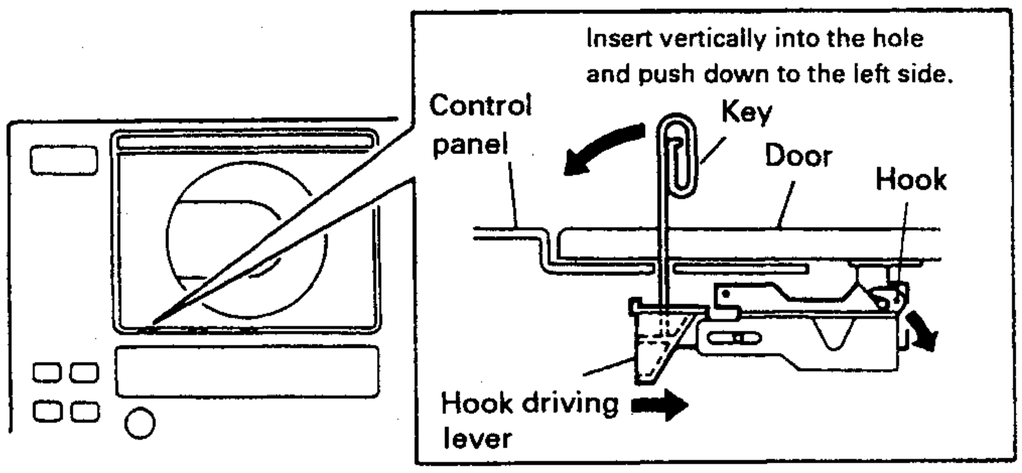


(Note 1) Important

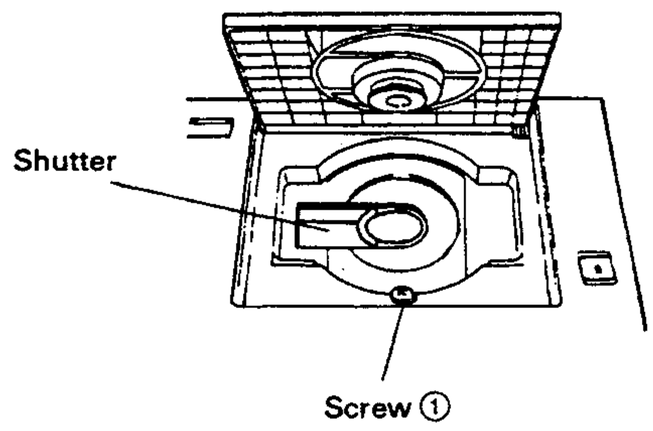
Opening the Door and Removing the Control Panel in Emergencies

This unit is equipped with a mechanism for opening the door manually when the door does not open by pressing the eject button due to some reason.

1. Pull out the power plug from the outlet.
2. Use a clip, etc. to form a key. (a metal stick with a diameter of 1 mm and length of 50 mm.)



3. Insert the key vertically into the above hole and push down to the left side. This will move the hook driving lever and open the door.
4. Check that the shutter closes.
If the shutter is not closed. (Note 2)



5. Remove the screw ① at the bottom of the door.
6. The chassis can be disassembled by removing all the screws ② of the control panel.

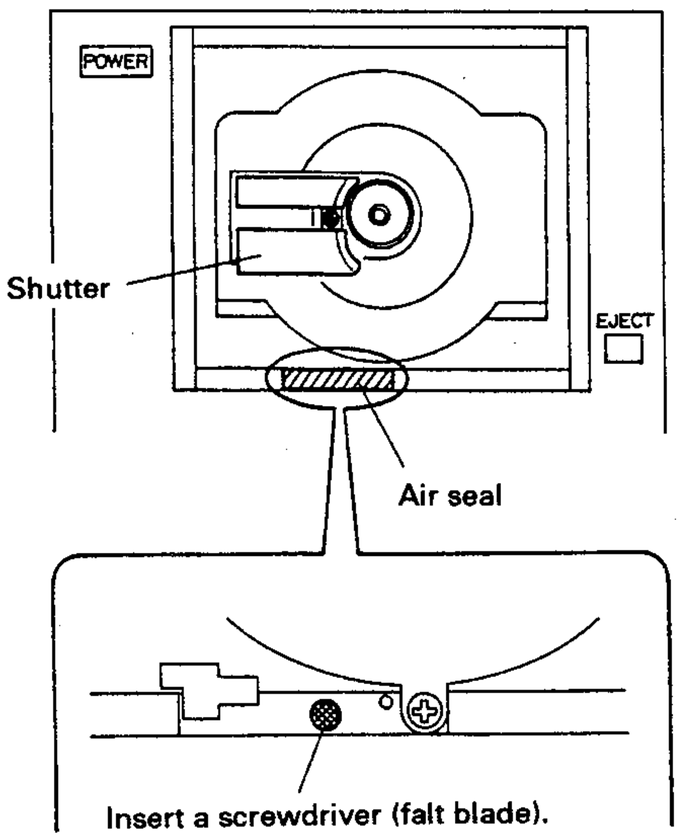
● Error Display

Displays the error number on the FL when player operation errors occur during normal use.

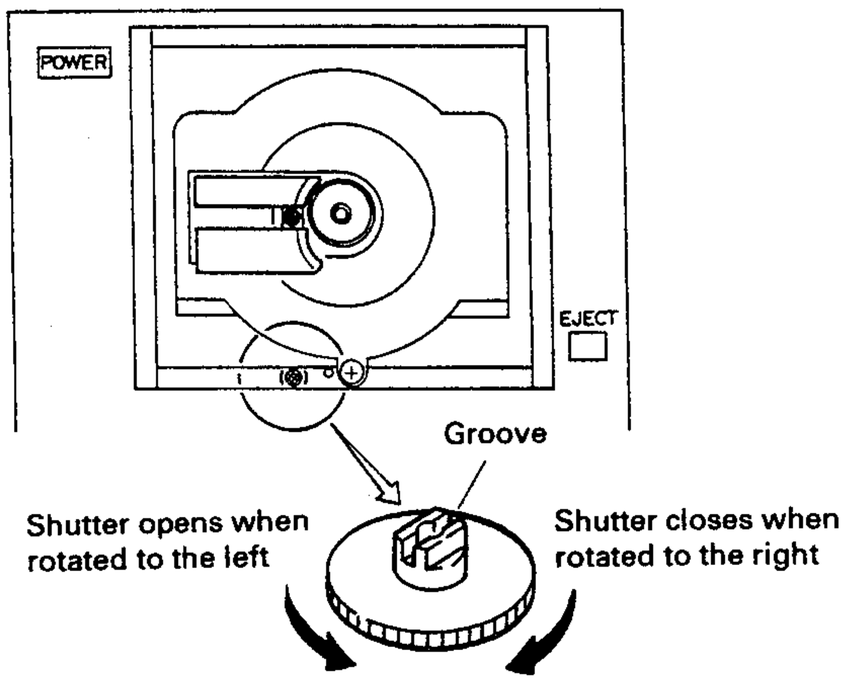
Displayed error code number	Type of error	Error contents	Cause → Remedy
E-72 01	TOC READ ERROR	TOC data on the disc cannot be read even after 20 seconds have passed.	A disc is dusty or dirty. → Clean the disc. A disc is cracked. → Replace the disc.
E-83 01	PLAYER ERROR	A disc cannot be played normally. (GFS NG) 2 sec x 3 times	
E-83 02	PLAYER ERROR	A disc cannot be played normally. (FOCUS NG) 0.1 sec x 3 times	
E-91 01	MECHANICAL TIME OUT	Mechanism operation is not completed within the specified time. (CLAMP) 4 sec	Foreign object is in the disc compartment. → Remove it. • There is something on the door. • The door open/close mechanism is faulty.
E-91 02	MECHANICAL TIME OUT	Mechanism operation is not completed within the specified time. (OPEN) 4 sec	
E-91 03	MECHANICAL TIME OUT	Mechanism operation is not completed within the specified time. (INSIDE) 5 sec	

(Note 2)Important
Operating the Shutter in the Power Off State
(When the shutter is not closed)

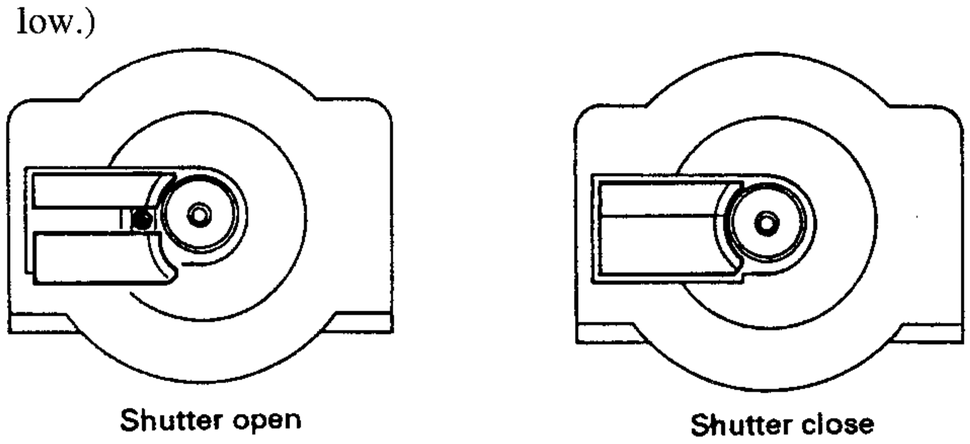
1. Remove the air seal in the panel (shaded portion).
2. Insert a small slotted screwdriver in the hole near the center of the part where the air seal was removed.



3. Fit the slotted screwdriver into the groove of driving gear B (DNK3199). When the driver is rotated, the shutter moves. As the inside cannot be seen through the hole easily, insert the screwdriver slowly and fit into the groove properly.



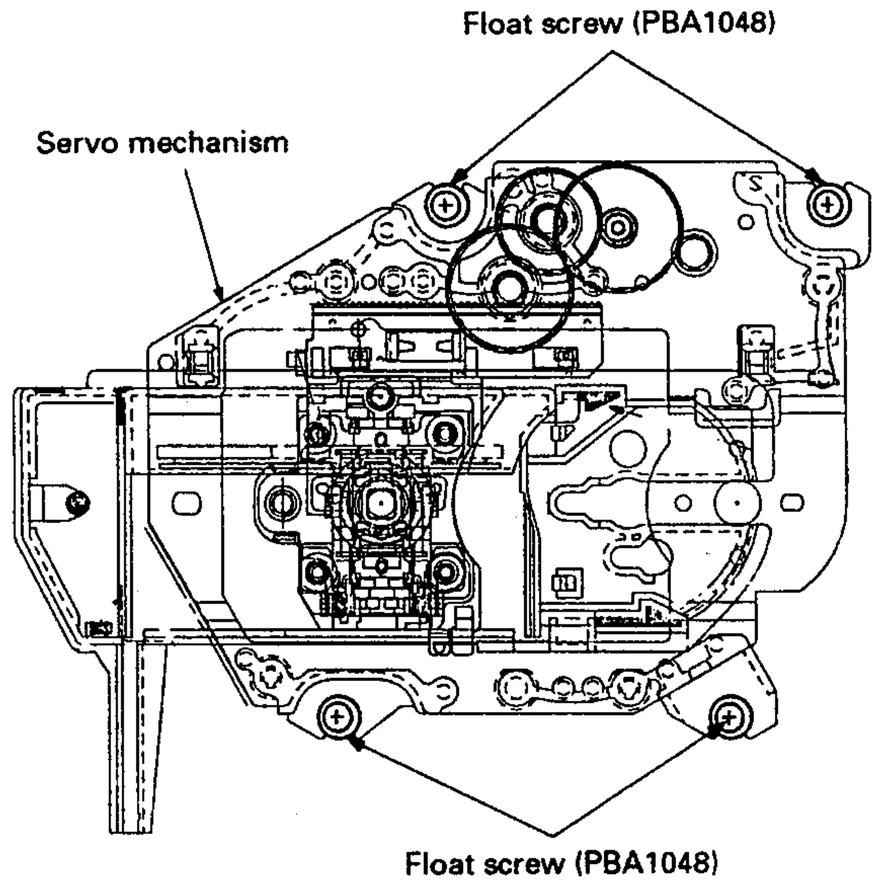
4. Rotate the driving gear until the shutter closes. (See figure below.)



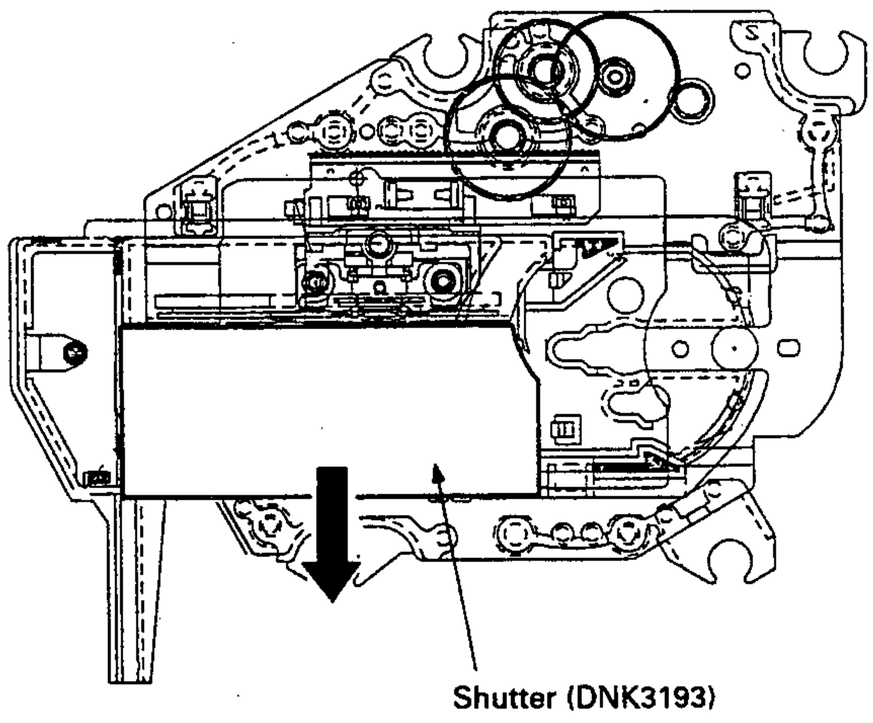
5. For the rest, followed by removing the screw ① as usual.

■ Replacement of pick-up assy-S (DXX2185)

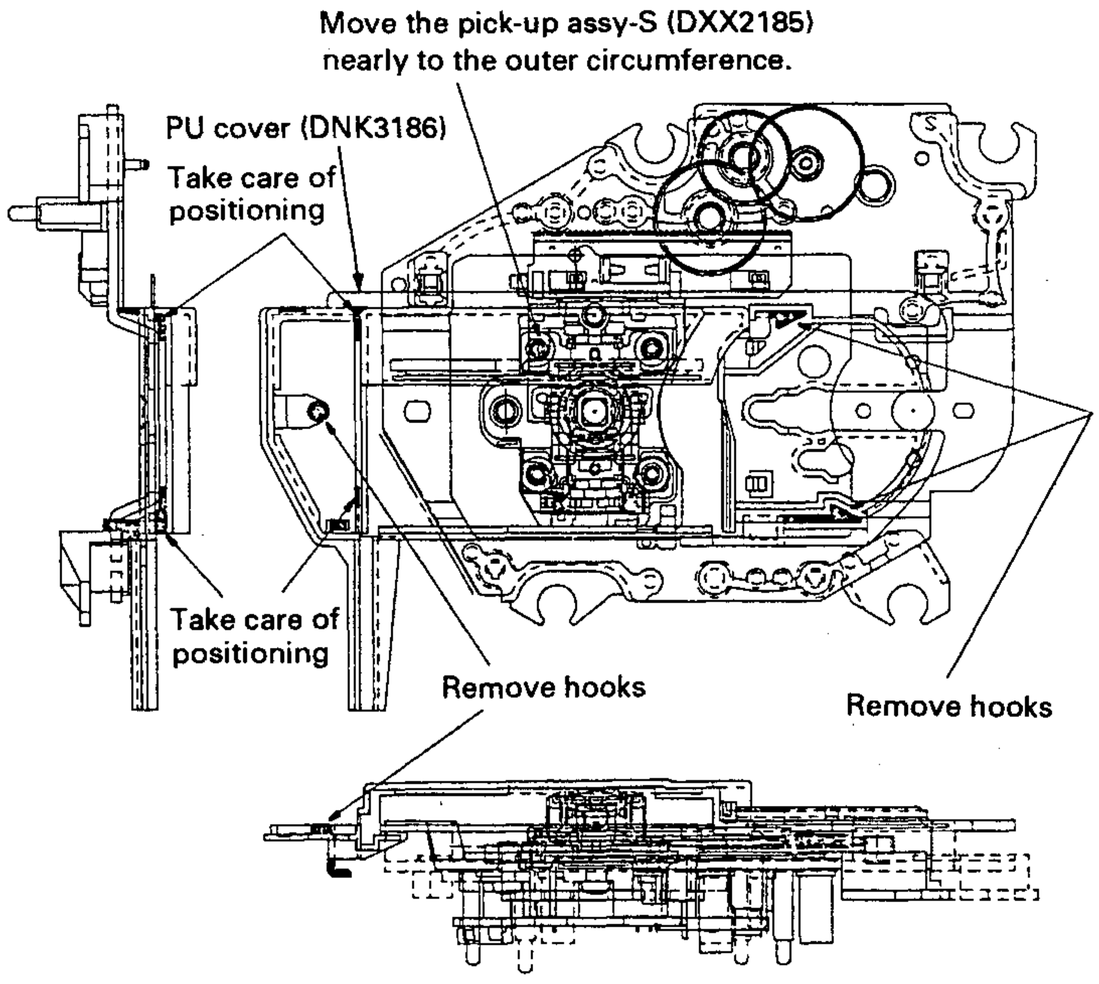
1. Remove the mechanism assy from the unit.
2. Remove the four float screws (PBA1048) fixing the servo mechanism assy from the mechanism assy.



3. Let the servo mechanism assy be single.
4. Remove the shutter (DNK3193) in the arrow direction.



5. Move the pick-up assy-S (DXX2185) nearly to the outer circumference and remove the PU cover (DNK3188).

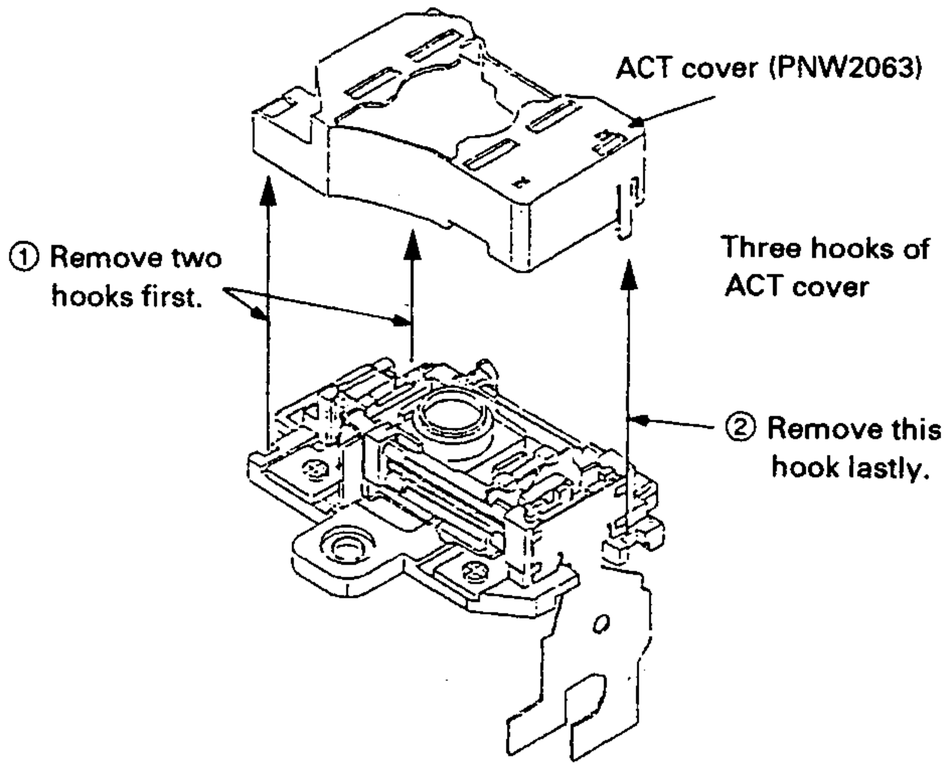

Move the pick-up assy-S (DXX2185) nearly to the outer circumference.
PU cover (DNK3186)
Take care of positioning
Take care of positioning
Remove hooks
Remove hooks

6. Remove the pick-up assy-S (DXX2185) from the servo mechanism assy.
7. Replace to the new pick-up assy.

Note 1: The new pick-up is attached with an ACT cover. Remove the ACT cover. Remove the ACT cover as follows then the new pick-up assy.

① Release the two hooks of the ACT cover using a pair of tweezers or screw driver.

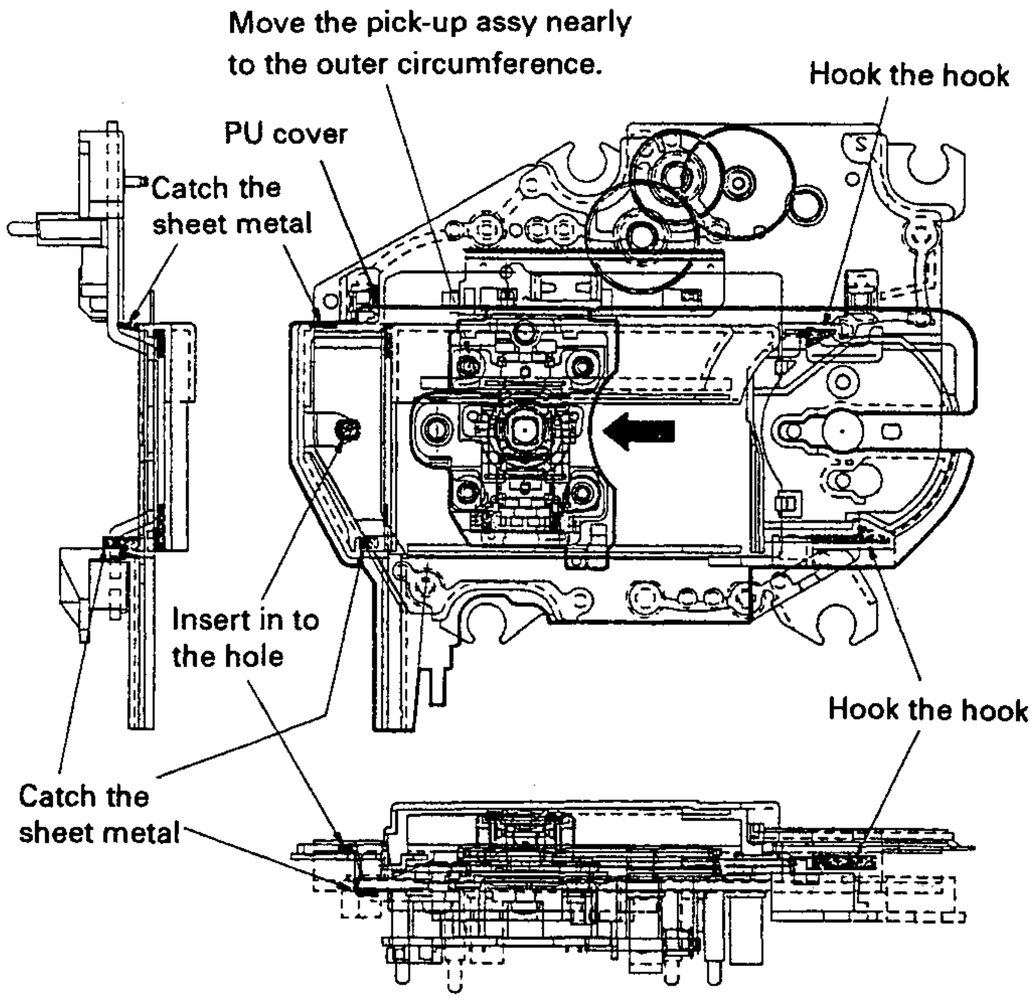
② Release the remaining one hook.



Note 2: Precaution on removal of ACT cover

- Do not bend the four suspension wires. Do not scratch the lens, and protect the lens from dust.

8. Attachment and assembly of the PU cover
- Move the pick-up assy nearly to the outer circumference.
- Hook the PU cover hook onto the sheet metal under the disc table and insert the guide into the hole at the same time.

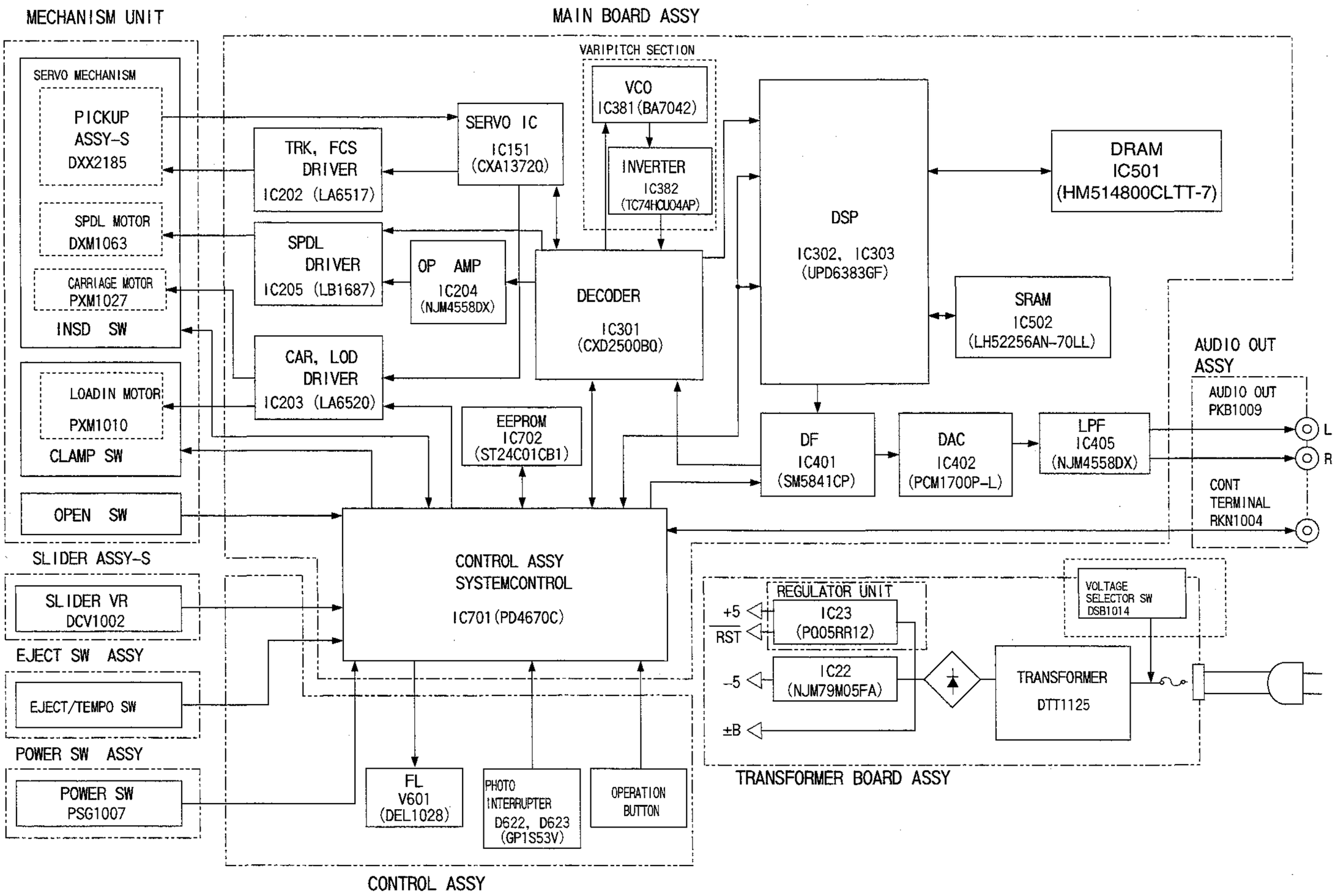

Move the pick-up assy nearly to the outer circumference.
Hook the hook
PU cover
Catch the sheet metal
Insert in to the hole
Hook the hook
Catch the sheet metal

9. Attach the shutter in the reverse order of procedure 4.

Precaution on attachment of PU cover and shutter

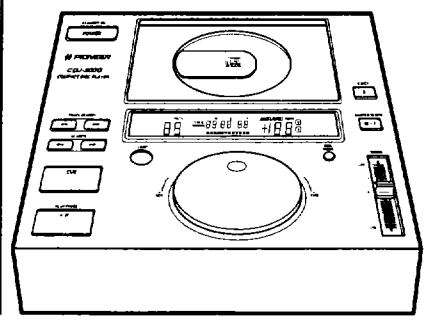
- Do not bend the four suspension wires. Do not scratch the lens, and protect the lens from dust.

6.3 BLOCK DIAGRAM



Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
RRV 1087

The chapter 1 of this Service Manual will not be reprinted. On your additional orders,we may supply only the chapter 2. For chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

COMPACT DISC PLAYER

CDJ-500G
CDJ-500

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	CDJ-500G	CDJ-500		
KUC	○	–	AC 120V	–
SELM	–	○	AC 110V/ 120V/ 220-230V/ 240V	With the voltage selector

CONTENTS

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1.6 IC INFORMATION 1-11
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1.9 PARTS LIST FOR EXPLODED VIEWS AND PACKING 1-36
1.10 PCB PARTS LIST 1-38

CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS 2-2
2.2 SCHEMATIC AND PCB CONECTION DIAGRAMS 2-7

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T-AAI MAY. 1994 Printed in Japan

CHAPTER 1

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

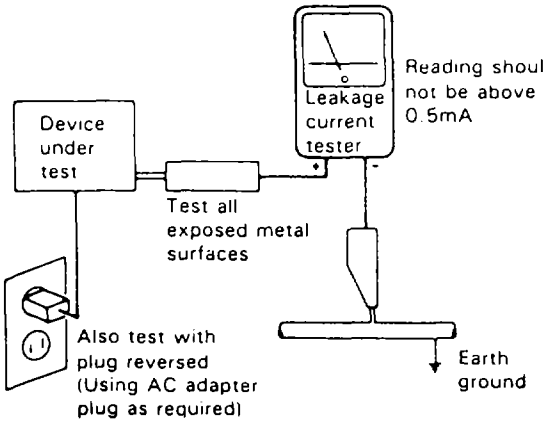
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn
varoitusmerkki

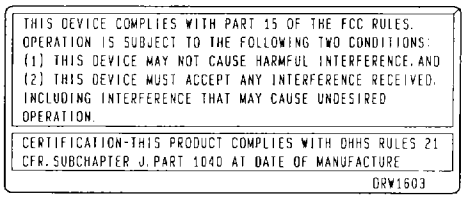
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

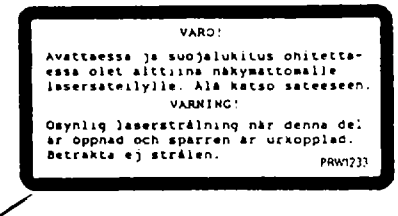
LASER
Picture 1
Warning sign for
laser radiation

CDJ-500 / SELM type


THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
CERTIFICATION-THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR, SUBCHAPTER J, PART 1040 AT DATE OF MANUFACTURE
DRW1603

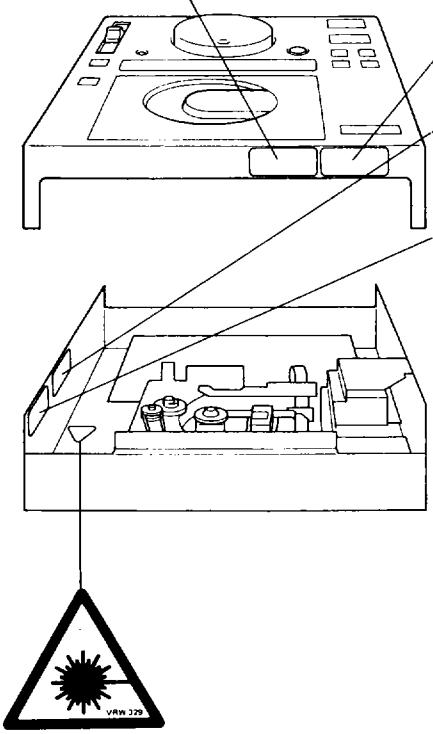
CDJ-500 / SELM type

CDJ-500 / SELM type


VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
PRW1233

CDJ-500 / SELM type

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094



CDJ-500 / SELM type

Additional Laser Caution

1. Laser Interlock Mechanism
   ON/OFF switching of the switch for detecting a loaded state, and ON/OFF switching of the clamp completion, close completion and shutter switches are detected by the system microprocessor. The design of this interlock mechanism prevents laser diode oscillation when even one of the clamp completion, close completion and shutter switches is OFF(High level).
   Accordingly, the interlock will no longer function and the laser diode will oscillate if all three of these switches are set deliberately to ON(Low level).
   The interlock also does not function in the test mode *.
   Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the PRE AMP BOARD ASSY mounted on the pickup assembly is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

*Refer to page 1-22.

1.2 SPECIFICATIONS

1. General

System ..... Compact disc digital audio system
Power requirements ..... AC 120V, 60Hz (KUC only)
Power requirements ..... AC 110/120/220-230/240 V (switchable) 50/60 Hz (SELM only)
Power consumption ..... 23 W (KUC only)
Power consumption ..... 21 W (SELM only)
Operating temperature ..... +5°C - +35°C (+41°F - +95°F)
Operating humidity ..... 5% - 85% (There should be no condensation of moisture.)
Weight ..... 4.1 kg (9 lbs 1 oz) (KUC only)
Weight ..... 4 kg (8 lbs 13 oz) (SELM only)
Dimensions ..... 320(W) X 362.1(D) X 98.5(H) mm 12-5/8(W) X 14-1/4(D) X 3-7/8(H) in

2. Audio section

Frequency response ..... 4 Hz - 20 kHz (EIAJ)
Signal-to-noise ratio ..... 106 dB or more (EIAJ)
Dynamic range ..... 96 dB or more (EIAJ)
Channel separation ..... 98 dB or more (EIAJ)
Total harmonic distortion ..... 0.004% or less (EIAJ)
Output level ..... 2.0 V
Channels ..... 2-channel (stereo)

3. Video section

Video output level ..... 1 Vp-p nominal, sync. negative (KUC only)
Video output impedance ..... 75Ω, unbalanced (KUC only)

4. Other terminals

CONTROL ..... miniature jack
VHF ADAPTER OUTPUT (VIDEO/AUDIO) ..... both RCA jacks with DC jack (KUC only)

5. Functions

- Disc compartment with top loading type
- Pick-up protector
- Sliding type speed control (TEMPO control knob)
- Starting playback immediately
- Loop playback
- Master tempo control
- Relay playback (using the CONTROL jack)
- Auto cue (ON/OFF)
- Cue point monitor
- Back cue
- Beat search with the Jog dial
- Frame search with the Jog dial
- Manual search with the Jog dial
- High-speed manual search
- Cyclical track search
- Switching of the TIME display (TIME/REMAIN)

6. Accessories

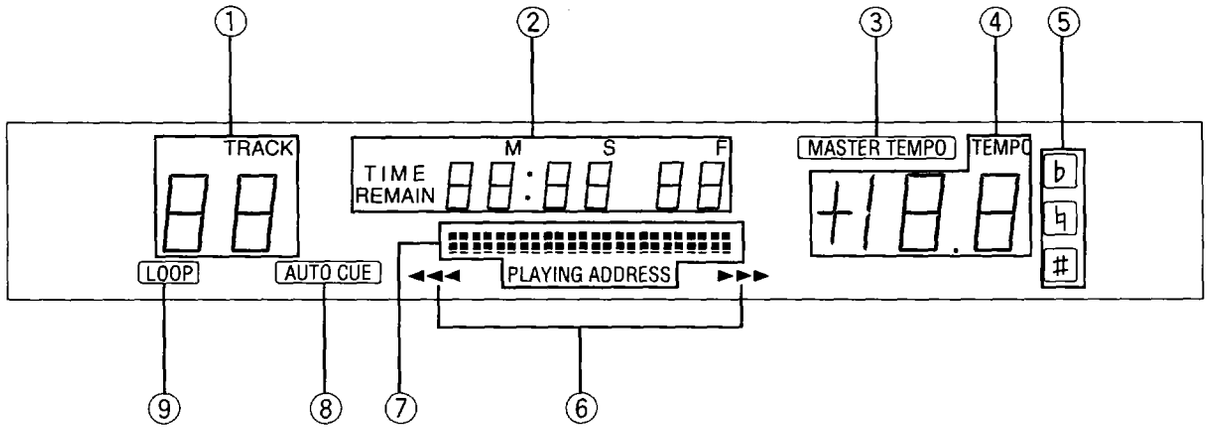
- Operating instructions 1
- Output cable 1
- Screws for rack mounting 4
- Spacers for rack mounting 4

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

Maintenance:
In order to ensure the safe and correct function of this unit, we recommend regular maintenance. Extended service life can be expected if maintained properly.

1.3 PANEL FACILITIES

Display Window



① TRACK number display

The track number being played is displayed.

② Time display (TIME/REMAIN)

The elapsed playback time of the track being played (TIME) or remaining playback time of the track being played (REMAIN) is displayed in minutes (M), seconds (S), or frames (F).

③ MASTER TEMPO indicator

This indicator lights up when the MASTER TEMPO function is carried out.

④ Playback tempo (TEMPO) display

The playback tempo being adjusted with the TEMPO control knob is displayed (up to ±10% in steps of 0.1%).

⑤ Pitch indicator (♭, ♮, #)

♭: The pitch of playback is decreased.
♮: Normal pitch of playback
#: The pitch of playback is increased.

⑥ Jog dial operation indicator (◄◄◄ / ►►►)

The indicator lights according to the rotating direction or speed of the Jog dial.

⑦ Playback address display (PLAYING ADDRESS)

The elapsed playback time or remaining playback time of the track being played is roughly indicated with the full-scaled bar graph.

- When no disc is in the disc compartment ..... goes off
- When displaying the elapsed playback time ..... lights up from the left side
- When displaying the remaining playback time ..... goes off from the left side
- When the remaining playback time is less than 15 seconds ..... blinks
- When the remaining playback time is less than 5 seconds ..... blinks rapidly

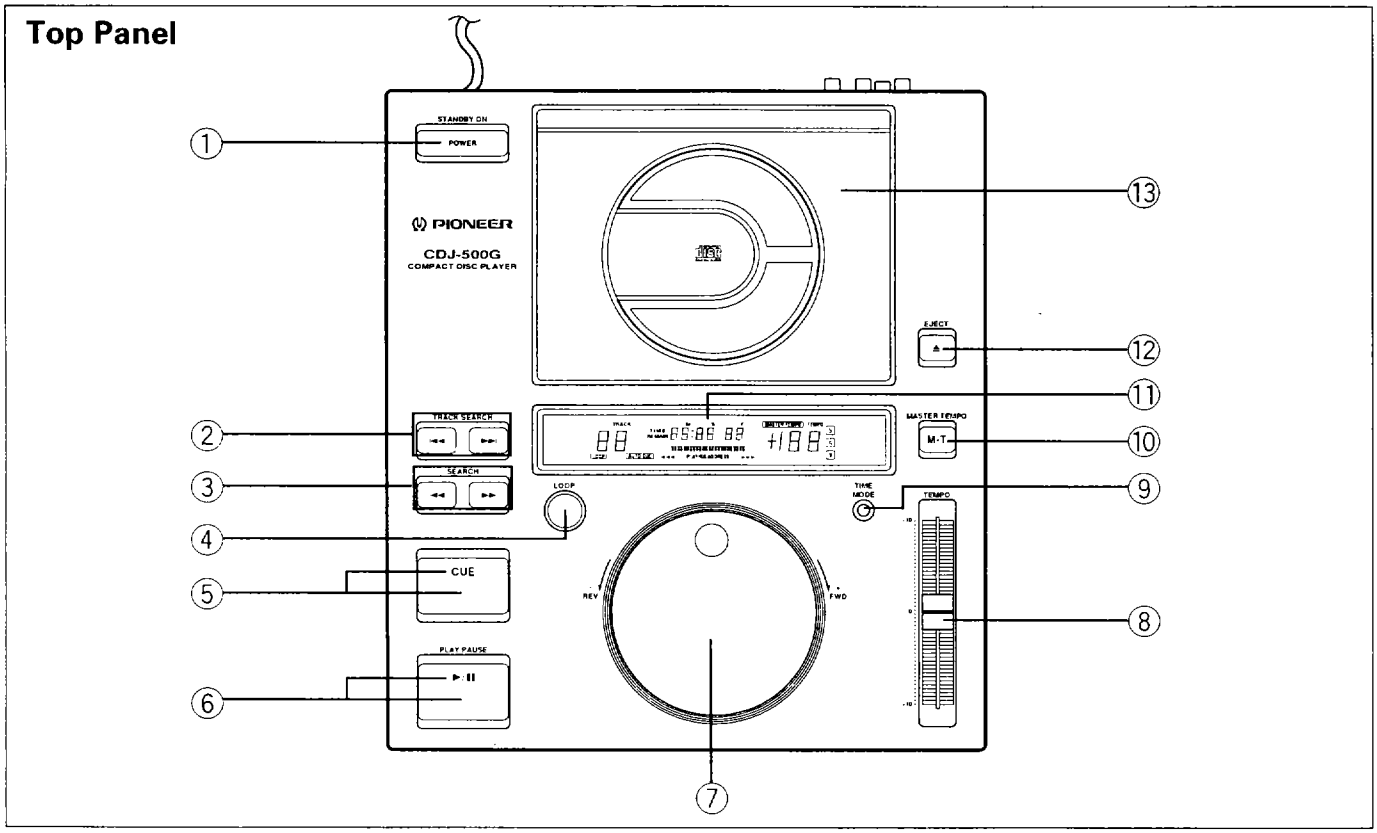
⑧ AUTO CUE indicator

This indicator lights up when the AUTO CUE function is carried out.

⑨ LOOP indicator

This indicator lights during loop playback.

Top Panel



① POWER STANDBY/ON switch

This is the switch for electric power.
ON: When set to the ON position, the power is supplied and the player becomes operational.
STANDBY: When set to the STANDBY position, the main power flow is cut and the player is no longer fully operational. A minute flow of the power feeds the player to maintain operation readiness.

② TRACK SEARCH buttons (|◄◄, ►►|)

Each time the button is pressed, playback advances or reverses to the beginning of the track.

③ SEARCH buttons (◄◄, ►►)

While the button is kept pressed, playback rapidly advances or reverses toward the end or beginning of the disc.

④ LOOP button

After the cue point is memorized, pressing this button in playback mode repeats the section between the cue point and the point where the LOOP button was pressed without intervals of sound.

⑤ CUE button/indicator

Three functions are available.

[Cue Point Memory]
When this button is pressed in pause mode, the player memorizes that point. You can start immediately playback from that point (Playback standby mode). The player enters playback standby mode.
When the new cue point is memorized, the last stored cue point is cleared.

[Back Cue]
When this button is pressed in playback mode, the sound is muted and playback is paused at the cue point.

[Cue Point Monitor]
When this button is pressed after the cue point is memorized, the sound can be heard for about 0.7 seconds maximum from the cue point.

When the CUE point is memorized, the CUE indicator lights up. When the player enters pause mode to write the new cue point, the CUE indicator blinks.

⑥ PLAY/PAUSE button/indicator (▶/II)

Each time this button is pressed, the player switches between playback mode and pause mode. The ▶/II indicator lights during playback, and blinks in pause mode.

⑦ Jog dial (+ FWD/– REV)

Three functions are available.

[Beat Search operation]
When the Jog dial is slowly rotated in playback mode, the playback tempo changes according to the rotating speed of the Jog dial. When rotating the Jog dial clockwise, the playback tempo becomes faster. When rotating the Jog dial counterclockwise the playback tempo becomes slower.

[Multi-Speed Search operation]
When the Jog dial is rapidly rotated in playback mode, playback advances or reverses while the sound is output. Rotate the Jog dial clockwise for fast-forward operation. Rotate the Jog dial counterclockwise for fast-reverse operation. The searching speed changes according to the rotating speed of the Jog dial.

[Frame Search operation]
Press PLAY/PAUSE during playback, and rotate the Jog dial in pause mode. Frame search can be carried out by 1 frame (1 second is equal to 75 frames).

⑧ TEMPO control knob

The playback tempo can be changed with this knob. The center clicked position is for normal playback tempo. If the knob is moved toward you (+ side), the music tempo will become fast. If the knob is moved away from you (– side), the music tempo will become slow.

⑨ TIME MODE button

Two functions are available.

[Switching the time display]
Each time this button is pressed, the time display changes between the elapsed playback time of the track (TIME) and the remaining playback time of the track (REMAIN).

[Switching ON/OFF of the Auto Cue and Auto Pause function]
When this button is kept pressed for more than 2 seconds, the Auto Cue function (*1) is set to ON or OFF. When the Auto Cue function is set to ON, the AUTO CUE indicator in the display window lights up. The Auto Pause function (*2) is also set to ON or OFF with this button.

(*1) Auto Cue function: When a disc is loaded or track search is carried out, the player memorizes the cue point at which the sound is output.

(*2) Auto Pause function: When a track being played is finished, the player automatically enters pause mode. Playback is paused just before the cue point.

- The setting of the time display or the ON/OFF setting of the Auto Cue function will be stored in the player even if the power is turned off.

⑩ MASTER TEMPO button (M • T)

Each time this button is pressed, the MASTER TEMPO function (*3) is set to ON or OFF. When the MASTER TEMPO function is set to ON, the MASTER TEMPO indicator in the display window lights.

(*3) MASTER TEMPO function: Even though the playback tempo is changed with the TEMPO control knob, the playback pitch is kept fixed.

⑪ Display window

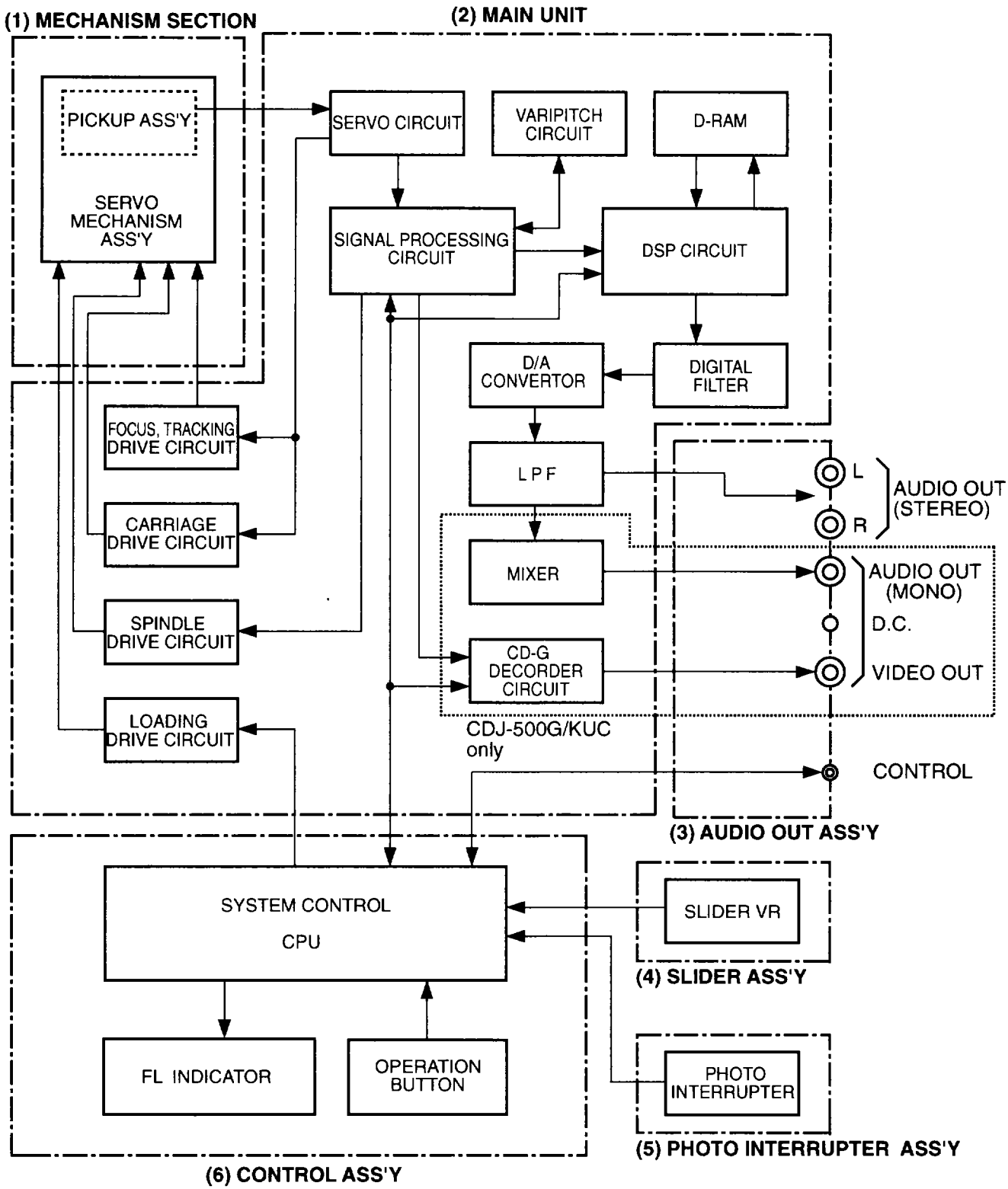
⑫ EJECT button (⏏)

Press this button to open the disc compartment door.

⑬ Disc compartment door

Press the EJECT button to open the door. To close the door, push the door in.

1.4 BLOCK DIAGRAM



● Explanation of Block Diagram

(1) Mechanisms section (servo mechanism ass'y,loading mechanism unit)
The unit comprises a pickup, servo mechanism ass'y, loading mechanism unit, open switch and clamp switch.

(2) Main unit
The main unit comprises a servo circuit, driver circuits, varipitch circuit, signal processing circuit, DSP circuit and audio circuit.
The pickup outputs RF signals, focus error signals, and tracking error signals. The servo circuit controls the focus servo, tracking servo and carriage servo using these signals.
The signals needed for the spindle servo are generated from the EFM to be sent to the signal processor from the servo circuit.
There are five driver circuits, for focusing, tracking, carriage operation, spindle operation and loading.
The varipitch circuit comprises an external crystal oscillation circuit and a PLL circuit, and sends data to the DSP synchronized with the clock in accordance with instructions from the microcomputer. Data processed at the DSP is sent to the digital filter and DAC. The data is converted by a D/A converter, and output as audio signal after passing through a low-pass filter.

* Sub-code signals output from the signal processing circuit are input to the CD-G decoder circuit. After error correction, these signals are image-processed, and output as NTSC video signals. (CDJ-500G/KUC type only)

(3) Audio out ass'y
Unbalanced analog audio signals and video signals (in the NTSC mode) are output from the RCA pin jack that has a control terminal.

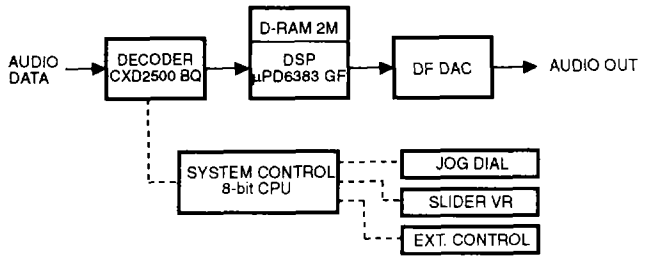
* This assembly has terminals for RF adapter-compatible audio output and DC output (CDJ-500G/ KUC type only).

(4) Slider ass'y
This has sliding variable resistors having a stroke of 100 mm. A voltage of 0 to +5V is output depending on the position of the slider knob.

(5) Photo interrupter ass'y
This ass'y outputs a pulse proportional to rotation from the photo-interrupter that is interlocked with the jog controller.

(6) Control ass'y
This ass'y comprises control buttons, a display and a system control microcomputer. The voltage output from the slider ass'y is input to the A/D port of the microcomputer, and converted to 8-bit digital signals. These instructions are sent to a decoder, and are used for controlling speed. The microcomputer also controls the display circuit, decoder and DSP.

1.5 CIRCUIT DESCRIPTION



The above circuit achieves the following functions.

(1) Starting playback immediately

As jumping of signal tracks is repeated when the CD is paused, a time lag of about 0.3 seconds at the most occurs when rewinding (when sound begins to be output after shift from pause to play). This time lag must be eliminated to make an instant start in order to join songs together by a cut-in. This instant start (about 0.03 seconds) is achieved by storing about the first 0.7 seconds of the song to memory, and playing the data in memory when pause is canceled. From 0.7 seconds onwards, the song data is continuously added to the end of this memory and is used as ring memory in order to continuously play the song. Memory management is executed by a high-performance DSP under the control of an 8-bit microcomputer.

(2) Beat search by jog controller

When joining songs together, it is extremely difficult to match the rhythm (speed and timing) with the BPM of two songs by adjusting the tempo using the slider. A jog controller is used to achieve the operation of manually accelerating or decelerating the disc slightly on an analog turntable.

The pulse generated by the pulse encoder according to the rotation of the jog controller is computed by a microcomputer to control the varipitch function of the decoder LSI.

Turning the dial clockwise accelerates the playback speed up to +12.7%. Turning the dial counterclockwise decelerates the playback speed up to -12.7%. Stopping the dial restores the playback speed to its original set speed.

(3) Master tempo

The slider voltage is converted to digital values by an A/D converter. A microcomputer controls the varipitch function of the decoder LSI to change the playback speed to ±10% in 0.1% steps.

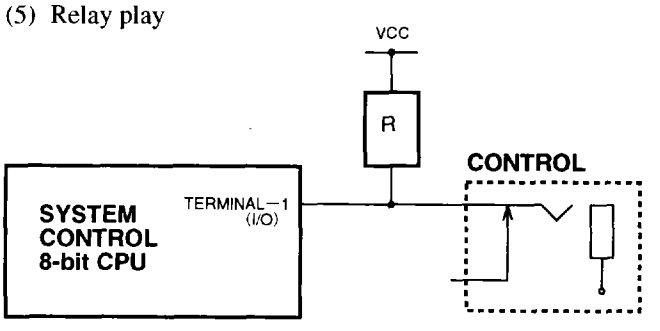
The playback pitch (interval) simultaneous with changes during variable speed, which results in vocals sounding unnatural. So, key control is processed by the DSP to eliminate interval changes from the original pitch.

(4) Loop playback

"Break beats" are generated by the DJ (Disk jockey) by repeatedly playing the same phrase on two turntables. The same effect as this can be achieved on a single CD player. This is called "loop playback."

First, the initial 0.7 seconds or so of the song data to be loop-played is stored to memory. The search time can be aurally eliminated by outputting the data stored to memory during searching from the end address to the start address during loop playback, which allows repeat playing without any break in sound.

(5) Relay play



Relay play is achieved by alternately connecting the player control terminals of two players to which auto cue is set.

Though terminal-1 is normally in an input standby state, the play start command (Low pulse) is output when the song being played ends, and terminal-1 stands by for instant start at the beginning of the next song.

Instant start is executed when the play start command is received during instant start standby.

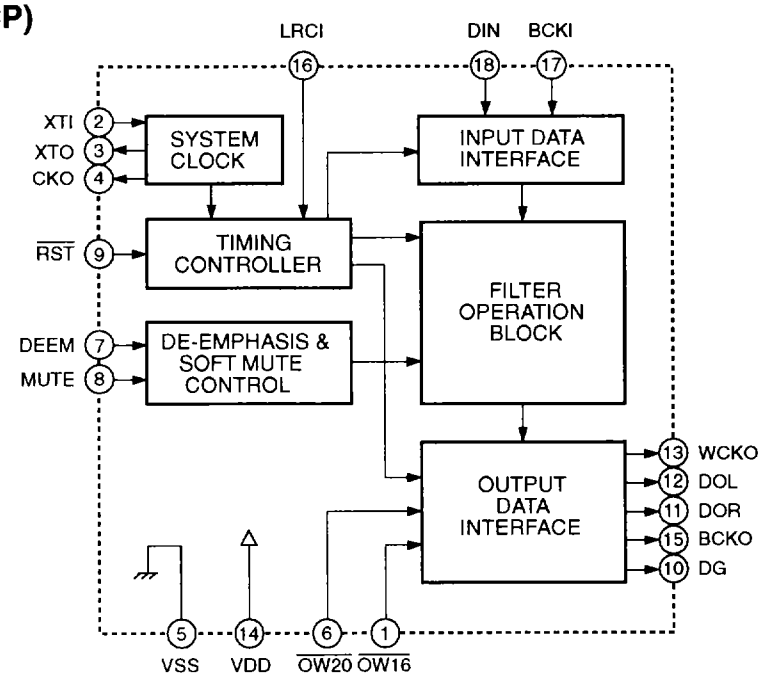
Note : The relay play does not operate correctly unless the audio input jacks of two players are connected to the audio input jack of one audio mixer or one amplifier.

1.6 IC INFORMATION

Note: The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ IC401 (SM5841CP)

● Block Diagram



● Pin Function

Pin No.	Pin Name	I/O	Function
1	$\overline{OW16}$	I	Select terminal 1 of output bits NO.

Setting		$\overline{OW20}$ H	$\overline{OW20}$ L
$\overline{OW16}$	H	18-bit output (NS-ON)	20-bit output (NS-ON)
	L	16-bit output (NS-ON)	18-bit output (NS-OFF)

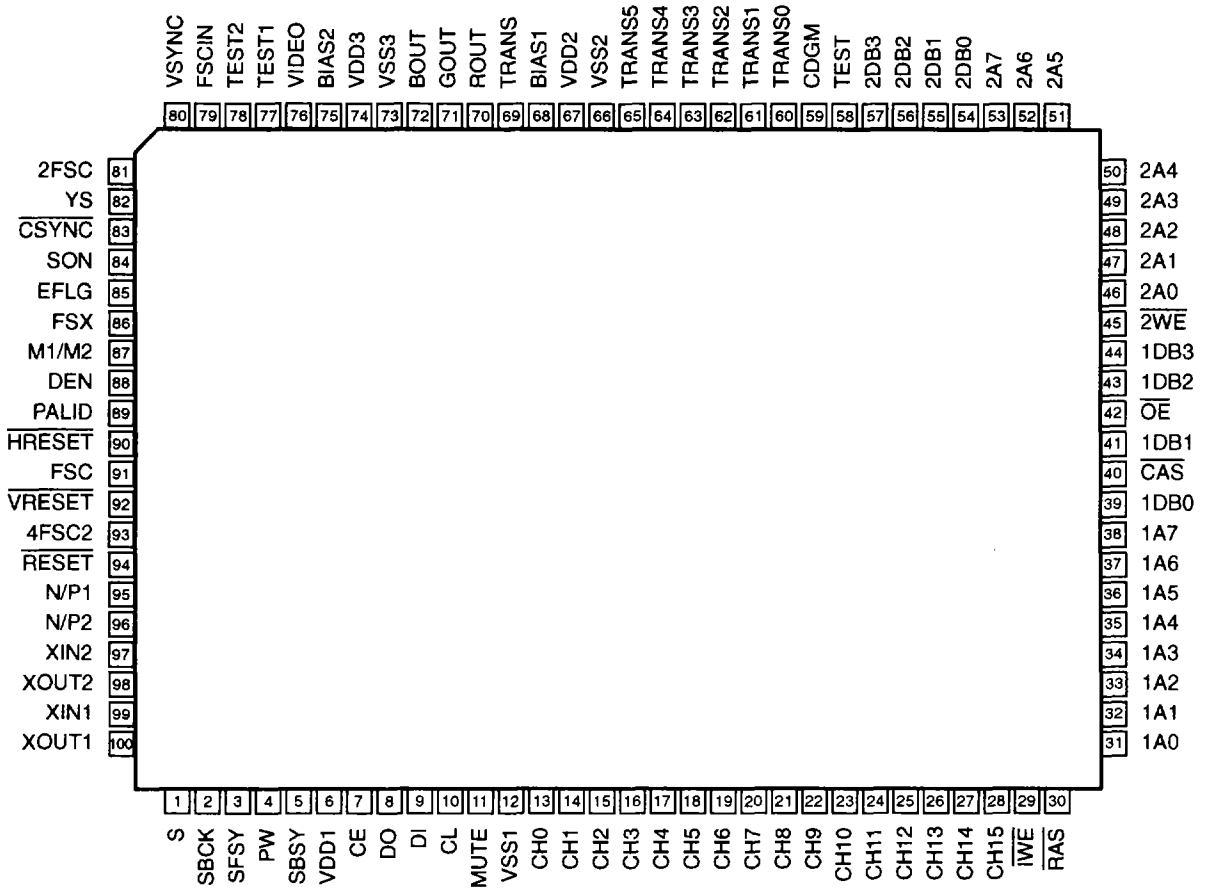
Note: NS-ON ;noise shaper ON
NS-OFF;noise shaper OFF (test mode)

Pin No.	Pin Name	I/O	Function
2	XTI	I	Oscillator
3	XTO	O	Oscillator
4	CKO	O	Oscillator clock (frequency same as XTI)
5	VSS	-	GND
6	$\overline{OW20}$	I	Select terminal 2 of output bits NO. (20 bits at $\overline{OW20}$=Low) (18 or 16 bits at $\overline{OW20}$=High) Note:See $\overline{OW16}$ table above.
7	DEEM	I	De-emphasis signal input (de-emphasis OFF when DEEM=Low) (de-emphasis ON when DEEM=High)
8	MUTE	I	Mute signal input (soft mute OFF when MUTE=Low) (soft mute ON when MUTE=High)
9	$\overline{RST}$	I	System reset (initialize) terminal
10	DG	O	Deglitch output
11	DOR	O	Rch data output
12	DOL	O	Lch data output
13	WCKO	O	Output word clock terminal
14	VDD	-	Power (5V) terminal
15	BCKO	O	Output bit clock terminal
16	LRCI	I	Sample rate (fs) clock terminal of input data
17	BCKI	I	Input bit clock terminal
18	DIN	I	Input data terminal

Note:
•"fs" in the description refers to the sample frequency of the input data.

■ IC501 (LC7870NE) (CDJ-500G/ KUC only)

● Pin Assignment



● Pin Function

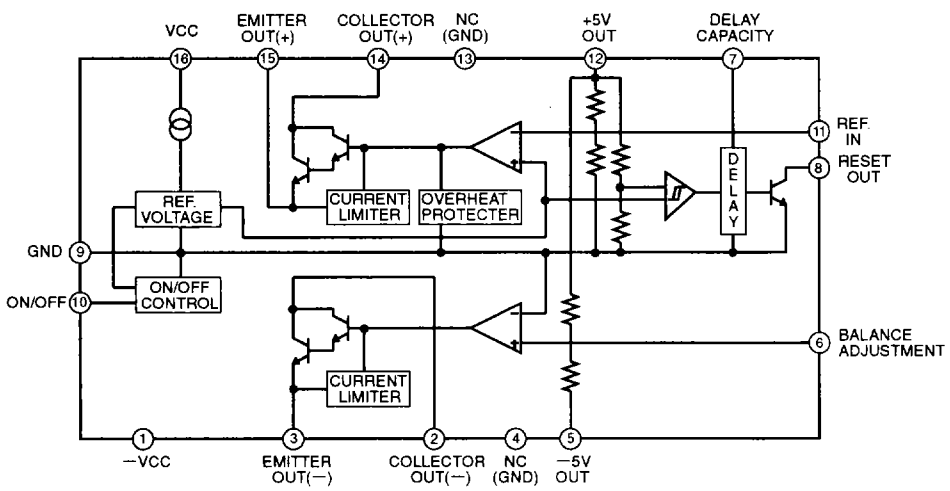
Pin No.	Pin Name	I/O	Function
1	S	I	DSP select for CD High: LC7861N/67, Middle: LC7860K/63, Low: LC7868/69
2	SBCK	O	Sub-code R/W read clock
3	SFSY	I	Sub-code frame synchronizing signal
4	PW	I	Sub-code R/W data
5	SBSY	I	Sub-code block synchronizing signal
6	VDD1	-	Digital system power terminal
7	CE	I	Control pin at serial input or output
8	DO	O	Serial data output
9	DI	I	Serial data input
10	CL	I	Clock at serial data I/O
11	MUTE	I	Control signal when disabling sub-code data
12	VSS1	-	Digital system GND
13	CH0	I	Enabled at channel select terminal High
14	CH1	I	
15	CH2	I	
16	CH3	I	
17	CH4	I	
18	CH5	I	
19	CH6	I	

Pin No.	Pin Name	I/O	Function
20	CH7	I	Enabled at channel select High
21	CH8	I	
22	CH9	I	
23	CH10	I	
24	CH11	I	
25	CH12	I	
26	CH13	I	
27	CH14	I	
28	CH15	I	
29	$\overline{1WE}$	O	No.1 DRAM control terminal
30	$\overline{RAS}$	O	No.1, No.2 DRAM common control terminal
31	1A0	O	No.1 DRAM address terminal
32	1A1	O	
33	1A2	O	
34	1A3	O	
35	1A4	O	
36	1A5	O	
37	1A6	O	
38	1A7	O	
39	1DB0	I/O	No.1 DRAM data terminal
40	$\overline{CAS}$	O	No.1, No.2 DRAM common control terminal
41	1DB1	I/O	No.1 DRAM data terminal
42	$\overline{OE}$	O	No.1, No.2 DRAM common control terminal
43	1DB2	I/O	No.1 DRAM data terminal
44	1DB3	I/O	
45	$\overline{2WE}$	O	No.2 DRAM control terminal
46	2A0	O	No.2 DRAM address
47	2A1	O	
48	2A2	O	
49	2A3	O	
50	2A4	O	
51	2A5	O	
52	2A6	O	
53	2A7	O	
54	2DB0	I/O	No.2 DRAM data terminal
55	2DB1	I/O	
56	2DB2	I/O	
57	2DB3	I/O	
58	TEST	I	Test pin
59	CDGM	O	High output at CDG disc
60	TRANS0	O	Transparency digital output
61	TRANS1	O	
62	TRANS2	O	
63	TRANS3	O	
64	TRANS4	O	
65	TRANS5	O	
66	VSS2	-	Analog system GND
67	VDD2	-	Analog system power
68	BIAS1	O	Capacitor connection terminal for ripple elimination
69	TRANS	O	6-bits DAC output for define-transparency

Pin No.	Pin Name	I/O	Function
70	ROUT	O	R datas 6-bits DAC output
71	GOUT	O	G datas 6-bits DAC output
72	BOUT	O	B datsa 6-bits DAC output
73	VSS3	-	Analog system GND terminal
74	VDD3	-	Analog system power terminal
75	BIAS2	O	Capacitor connection terminal for ripple elimination
76	VIDEO	O	Composite video output terminal (8-bits DAC output)
77	TEST1	I	Test pin
78	TEST2	I	
79	FSCIN	I	Sub-carrier clock input terminal
80	VSYNC	O	Vertical synchronizing signal output terminal
81	2FSC	O	2FSC output terminal
82	YS	O	Superimpose control output
83	$\overline{\text{CSYNC}}$	O	Composite synchronizing signal output
84	SON	I	Superimpose ON/OFF terminal
85	EFLG	O	Error status monitor terminal
86	FSX	O	Error status monitor trigger terminal
87	M1/M2	I	256 DRAM 1 or 2 select terminal High: 1, Low: 2
88	DEN	I	DISC information display enable terminal High: BGC, Low: Enable
89	PALID	I	External control terminal at superimpose PAL
90	$\overline{\text{HRESET}}$	I	Horizontal timing external control terminal
91	FSC	O	Sub-carrier clock output. NTSC mode: 3.579545 MHz, PAL mode: 4.433619 MHz
92	$\overline{\text{VRESET}}$	I	Vertical timing external control terminal
93	4FSC2	I	External clock input terminal at superimpose
94	$\overline{\text{RESET}}$	I	Reset input terminal
95	N/P1	I	NTSC/PAL select terminal (RGB encoder) High: NTSC, Low: PAL
96	N/P2	I	NTSC/PAL select terminal (CDG decoder) High: NTSC, Low: PAL
97	XIN2	I	Crystal oscillator connection terminal 17.734476 MHz (for PAL)
98	XOUT2	O	
99	XIN1	I	Crystal oscillator connection terminal 14.31818 MHz (for NTSC)
100	XOUT1	O	

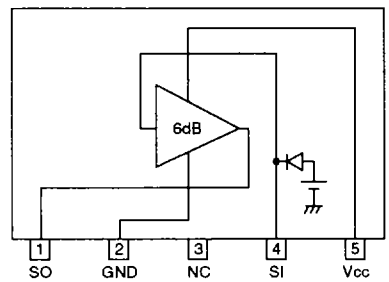
■ IC20 (M5290P)

● Block Diagram



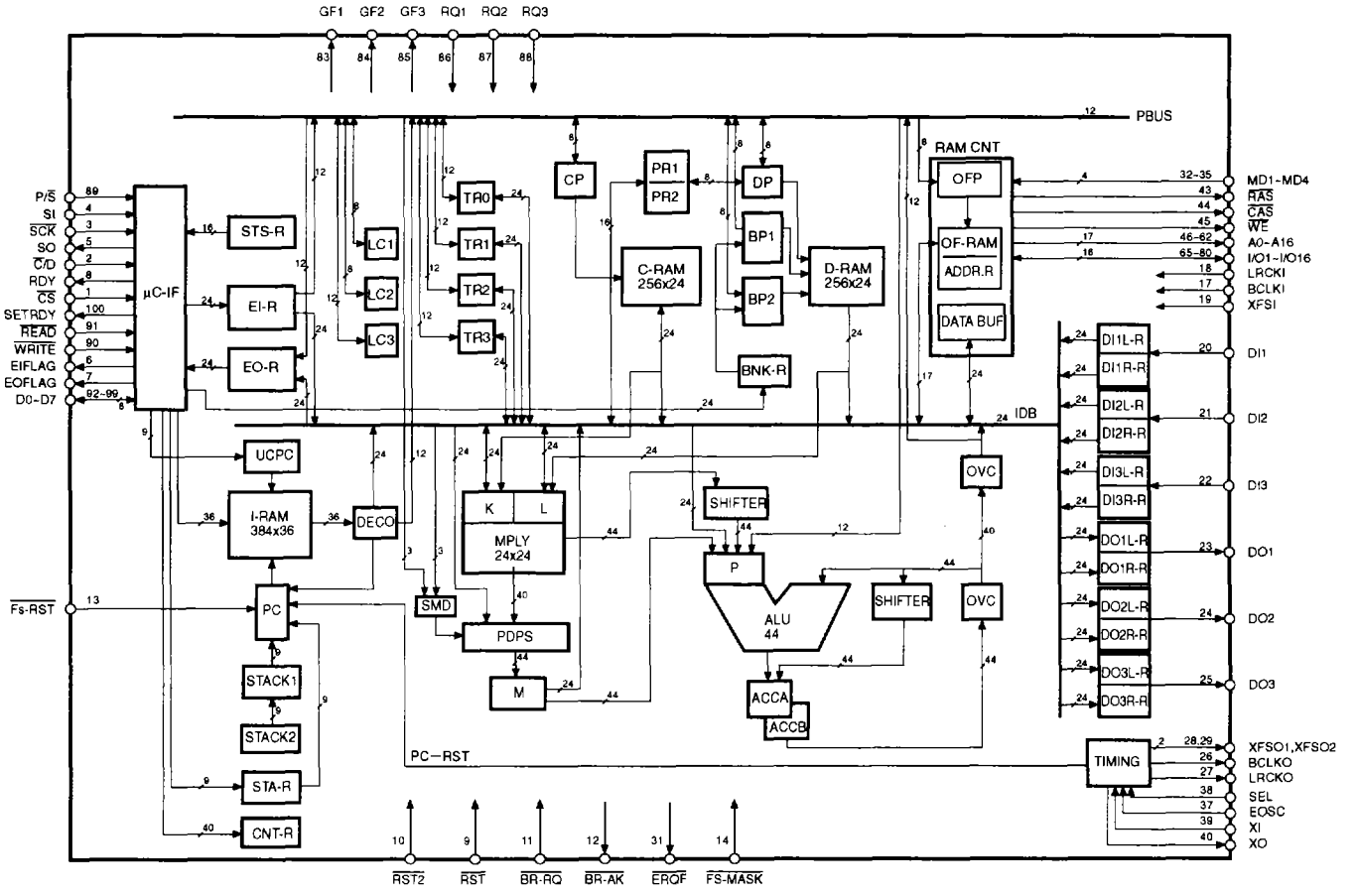
■ IC503 (MM1031XS)

● Block Diagram



■ IC302 (μPD6383GF)

● Pin Assignment



● Pin Function

Pin No.	Pin Name	I/O	Function
1	$\overline{CS}$	I	Input of μPD6383GF chip select signal. When $\overline{CS}$ is active, data can be transferred to and from the host CPU via SI and SO. SI input is latched by the leading edge of $\overline{CS}$.
2	$\overline{C}$/D	I	Input of command/data designation signal of SI input High: Data Low: Command
3	$\overline{SCK}$	I	Input of clock for serial data transfer SI input and SO output are synchronized with $\overline{SCK}$.
4	SI	I	Serial input of commands or data
5	SO	O	Serial output of content of external output register (EO-R) or instruction RAM. This is an N-ch open drain pin.
6	EIFLAG	O	Output of status flag of external input register (EI-R)
7	EOFLAG	O	Output of status flag of external output register (EO-R)
8	RDY	O	Output of SI input acceptable status signal. This is an N-ch open drain pin.
9	$\overline{RST}$	I	Input of reset signal

Pin No.	Pin Name	I/O	Function
10	$\overline{RST2}$	I	Input of reset signal for rewriting the instruction RAM with the register content.
11	$\overline{BR\text{-}RQ}$	I	Input of break request signal from host CPU. BRRQ flag is set by $\overline{BR\text{-}RQ}$. This is used in the emulator mode. Pull up in regular modes.
12	$\overline{BR\text{-}AK}$	O	Signal output that indicates that µPD6383 operation has been broken. This is reset by the BRAKST instruction. This is used in the emulator mode.
13	$\overline{Fs\text{-}RST}$	I	Input of program counter reset signal. This is used in the emulator mode. Pull up in regular modes.
14	$\overline{Fs\text{-}MASK}$	I	Input of PC-RST inhibit signal. This is used in the emulator mode. Pull up in regular modes.
15	VDD	-	+ power supply to logic circuit (+5V ±10%)
16	GND	-	Ground
17	BCLKI	I	Input of bit clock for DI1 to DI3 input signals and DO1 to DO3 output signals
18	LRCKI	I	Input of L/R channel designation signal for DI1 to DI3 input signals and DO1 to DO3 output signals
19	XFsI	I	Input for generating the bit clock in the slave mode. XFsI input is divided and output from BCLKO.
20 to 22	DI1 to DI3	I	Serial input of audio signal
23 to 25	DO1 to DO3	O	Serial output of audio signal
26	BCLKO	O	Output of bit clock for A/D, D/A converter control. In the master mode, the system clock is divided before output. In the slave mode, the signal formed from XFsI input is output. The signal is automatically formed by designation of the XFsI input signal from the control register.
27	LRCKO	O	Output of L/R channel designation signal for A/D, D/A converter control. In the master mode, the system clock is divided before output. In the slave mode, the signal formed from input of LRCKI is output.
28	XFsO1	O	Output of clock for A/D, D/A converter control. In both of the master and slave modes, the system clock is divided before output. The division rate is designated by the control register.
29	XFsO2	O	Output of clock for A/D, D/A converter control. In the master mode, the system clock is divided before output. In the slave mode, the signal formed from XFsI input is output. The division rate is designated by the control register.
30	TEST	I	Test input. Pull down.
31	$\overline{ERQF}$	O	Output of ERQ flag
32 to 35	MD1 to MD4	I	Input of select external RAM type for digital delay and connection conditions.
36	GND	-	Ground
37	EOSC	I	Input of external clock. When the external clock is not used (SEL is High), either pull up or connect to GND.
38	SEL	I	Input of system clock select signal. High: XI/XO Low: EOSC
39	XI	I	Connection of crystal for oscillation (input side of inverter)

Pin No.	Pin Name	I/O	Function
40	XO	O	Connection of crystal for oscillation (output side of inverter)
41	GND	-	Ground
42	VDD	-	+ power supply to logic circuit (+5V ±10%)
43	$\overline{RAS}$	O	Output of row address strobe of external RAM for digital delay
44	$\overline{CAS}$	O	Output of column address strobe of external RAM for digital delay
45	$\overline{WE}$	O	Output of write enable signal of external RAM for digital delay.
46 I 62	A0 I A16	O	Output of address of external RAM for digital delay. A16 is MSB, and A0 is LSB. Row address and column address are output at DRAM selection.
63	VDD	-	+ power supply to logic circuit (+5V ±10%)
64	GND	-	Ground
65 I 80	I/O1 I I/O16	I/O	Data I/O of external RAM for digital delay. I/O16 is MSB, and I/O1 is LSB.
81	GND	-	Ground
82	VDD	-	+ power supply to logic circuit (+5V ±10%)
83 I 85	GF1 I GF3	O	Output of general flag. GF1 to GF3 can be set, reset and toggled by instructions.
86 I 88	RQ1 I RQ3	I	Input of general flag. RQ1 to RQ3 can be controlled from the host CPU, and can be verified by the COND field in instructions.
89	P/$\overline{S}$	I	Input of parallel/serial select of the host CPU interface (μC-IF) High: Parallel Low: Serial
90	$\overline{WRITE}$	I	Input of host CPU data write signal on parallel interface
91	$\overline{READ}$	I	Input of host CPU data read signal on parallel interface
92 I 99	D0 I D7	I/O	Data I/O on parallel interface
100	SETRDY	O	Acceptable status signal output of command set or data set. This is used in the emulator mode. Set to open in regular modes.

■ IC701 (PD4543A)

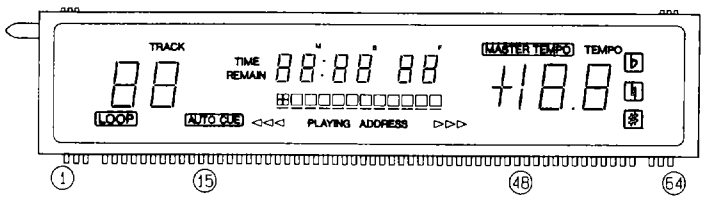
● Pin Function

Pin No.	Port	Pin Name	I/O	Active	Function
1	FIP6	GRID7	O	L	FL grid output 7
2	FIP5	GRID6	O	L	FL grid output 6
3	FIP4	GRID5	O	L	FL grid output 5
4	FIP3	GRID4	O	L	FL grid output 4
5	FIP2	GRID3	O	L	FL grid output 3
6	FIP1	GRID2	O	L	FL grid output 2
7	FIP0	GRID1	O	L	FL grid output 1
8	VDD	VDD	-	-	VDD connection
9	SCK0	DCLK	O	L	Serial clock (for DSP and CDG)
10	SO0	DDAT	O	L	Serial data output
11	P25	CLOSE	I	-	Door close detection switch input
12	P24	SHUT	I	-	Door shutter close detection switch input
13	P23	JOG2	I	-	Jog dial pulse input
14	SCK1	CLOK	O	H	Serial clock (for CXD2500)
15	SO1	DATA	O	H	Serial data output (for CXD2500)
16	SI1	SQSO	I	-	Sub-code Q serial data input
17	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$	I	-	CPU reset (Low: reset)
18	P74	$\overline{\text{LDON}}$	O	H	Laser diode output (High: OFF, Low: ON)
19	P73	DOWN	O	L	Servo-mechanism unit down output
20	AVSS	GND ref	-	-	A/D converter ground potential
21	P17	UP	O	L	Servo-mechanism unit up output
22	P16	$\overline{\text{OPEN}}$	I	-	Servo-mechanism unit down completed switch input
23	P15	$\overline{\text{CLMP}}$	I	-	Clamp completed switch input
24	P14	INSD	I	-	Slider inside switch input (Low: inside)
25	P13	FCOK	I	-	Focus OK input (High: OK, Low: No Good)
26	P12	$\overline{\text{XLAT}}$	O	H	LSI control data latch pulse
27	P11	CT	I	-	Slider center tap voltage input
28	P10	ADIN	I	-	Slider voltage input
29	AVDD	VDD	-	-	A/D converter analog power supply
30	AVREF	VDD ref	-	-	A/D converter reference voltage
31	P04	SENS	I	-	LSI operating status input
32	XT2	XT2	-	-	Not used
33	VSS	GND	-	-	GND connection
34	X1	X1	-	-	Main system oscillation (4.194304 MHz)
35	X2	X2	-	-	Main system oscillation (4.194304 MHz)
36	P37	GFS	I	-	Frame sync lock input (High: OK, Low: No Good)
37	P36	$\overline{\text{RST2}}$	O	H	DSP reset 2 output (Low: reset)
38	P35	RDY	I	-	DSP ready input (Low: ready)
39	P34	$\overline{\text{C}}$/D	O	H	DSP command/data designation (Low: command)
40	P33	CS	O	H	DSP chip select (Low: select)
41	P32	RQ2	O	L	DSP memory read (High: read)
42	P33	RQ1	O	L	DPS memory write (High: write)
43	P34	GF1	O	H	DSP data compare input (High: comparing)
44	P03	CE	O	L	CDG chip enable (High: enable)
45	INTP2	SCOR	I	-	Sub-code sync interrupt input
46	P01	GRES	O	H	CDG decoder reset (Low: reset)
47	INTP0	JOG1	I	-	Jog dial pulse interrupt input

Pin No.	Port	Pin Name	I/O	Active	Function
48	IC	IC	-	-	GND connection
49	P72	CDGM	I	-	CDG disc judgment input (GND connection)
50	P71	MUTE	O	H	Muting output (High: ON, Low: OFF)
51	P70	CONT1	I/O	H	External control I/O
52	VDD	VDD	-	-	VDD connection
53	P127	GND	I	-	GND connection
54	P126	KD2	I	-	Key scan data input
55	P125	KD1	I	-	Key scan data input
56	P124	KD0	I	-	Key scan data input
57	P123	EPCS	O	H	EEPROM chip select output (Low: select)
58	P122	EPCK	O	L	EEPROM serial clock output
59	P121	EPDI	O	L	EEPROM serial data output
60	P120	EPDO	I	-	EEPROM serial data input
61	P117	LED3	O	H	PLAY/PAUSE LED output (Low: ON)
62	P116	LED2	O	H	CUE LED output (Low: ON)
63	P115	LED1	O	L	LOOP LED output (Low: ON)
64	P114	SEG7	O	L	FL indicator segment output 7
65	P113	SEG6	O	L	FL indicator segment output 6
66	P112	SEG5	O	L	FL indicator segment output 5
67	P111	SEG4	O	L	FL indicator segment output 4
68	P110	SEG3	O	L	FL indicator segment output 3
69	P107	SEG2	O	L	FL indicator segment output 2
70	P106	SEG1	O	L	FL indicator segment output 1
71	VLOAD	VLOAD	-	-	FIP control/drive pull-down resistor connection (-31V)
72	P105	SEG12	O	L	FL indicator segment output 12
73	P104	SEG11	O	L	FL indicator segment output 11
74	P103	SEG10	O	L	FL indicator segment output 10
75	P102	SEG9	O	L	FL indicator segment output 9
76	P101	SEG8	O	L	FL indicator segment output 8
77	P100	GRID11	O	L	FL grid output 11
78	FIP9	GRID10	O	L	FL grid output 10
79	FIP8	GRID9	O	L	FL grid output 9
80	FIP7	GRID8	O	L	FL grid output 8

■ V701 (DEL1021) FL Display

● Outline Diagram



● Pin Assignment

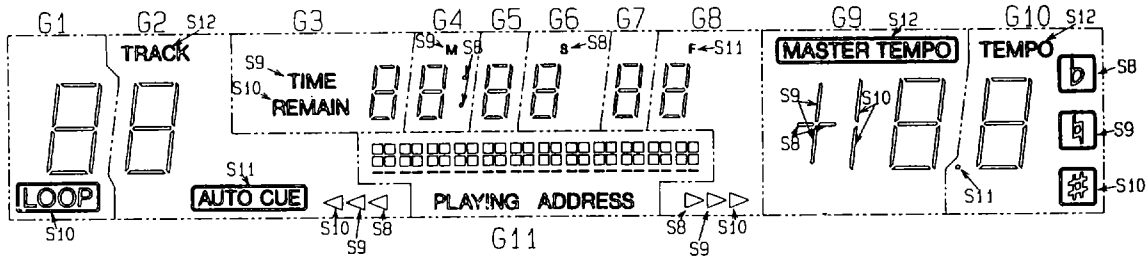
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Assignment	F	F	F	NP	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10

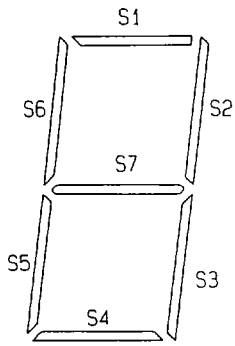
Pin No.	15	16 ~ 47	48	49	50	51	52	53	54	55	56	57	58
Assignment	G11	NP	S13	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10

Pin No.	59	60	61	62	63	64
Assignment	S11	S12	NP	F	F	F

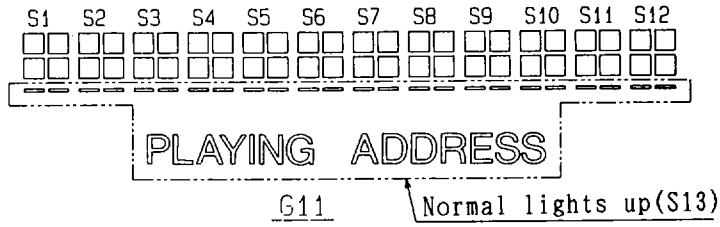
F:Filament G1~G11:Grid S1~S13:Anode NP:No pin

● Anode Grid Assignment





G1~G11



● Anode Grid Assignment and Pin Assignment

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	⊞
S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	⊞
S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	⊞
S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	⊞
S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	⊞
S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	⊞
S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	⊞
S8		◁		° °		S		▷		♭	⊞
S9		◁	TIME	M				▷		♮	⊞
S10	LOOP	◁	REMAIN					▷		♯	⊞
S11		AUTO CUE						F		°	⊞
S12		TRACK							MASTER TEMPO	TEMPO	⊞
S13											PLAYING ADDRESS

1.7 ADJUSTMENTS

● Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1-4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin6(FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin2(TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin1(RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin1(RF)	None
5	Focus servo loop gain adjustment	TP1, Pin5(FCS. IN) TP1, Pin6(FCS. ERR)	VR152(FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin3(TRK. IN) TP1, Pin2(TRK. ERR)	VR151(TRK. GAN)
7	MSB adjustment	AUDIO OUT(JA801) L or R terminal	VR402(MSB ADJ.L) VR401(MSB ADJ.R)
8	3.58MHz Free-run Frequency adjustment	TP3	VC501(FSC)

● Abbreviation table

FCS. ERR :Focus Error
TRK. ERR :Tracking Error
FCS GAN :Focus Gain
TRK GAN :Tracking Gain
FCS. IN :Focus In
TRK. IN :Tracking In

● Measuring Instruments and Tools

1.Dual trace oscilloscope (10:1 probe)
2.Signal generator
3.Test disc (YEDS-7)
4.8cm disc (With at least about 20 minutes of recording)
5.Low-pass filter (39kΩ+0.001μF)
6.Resistor (100kΩ)
7.Ball point hexagon wrench (GGK1002)
8.Standard tools

● Test Point and Adjustment Variable Resistor Positions

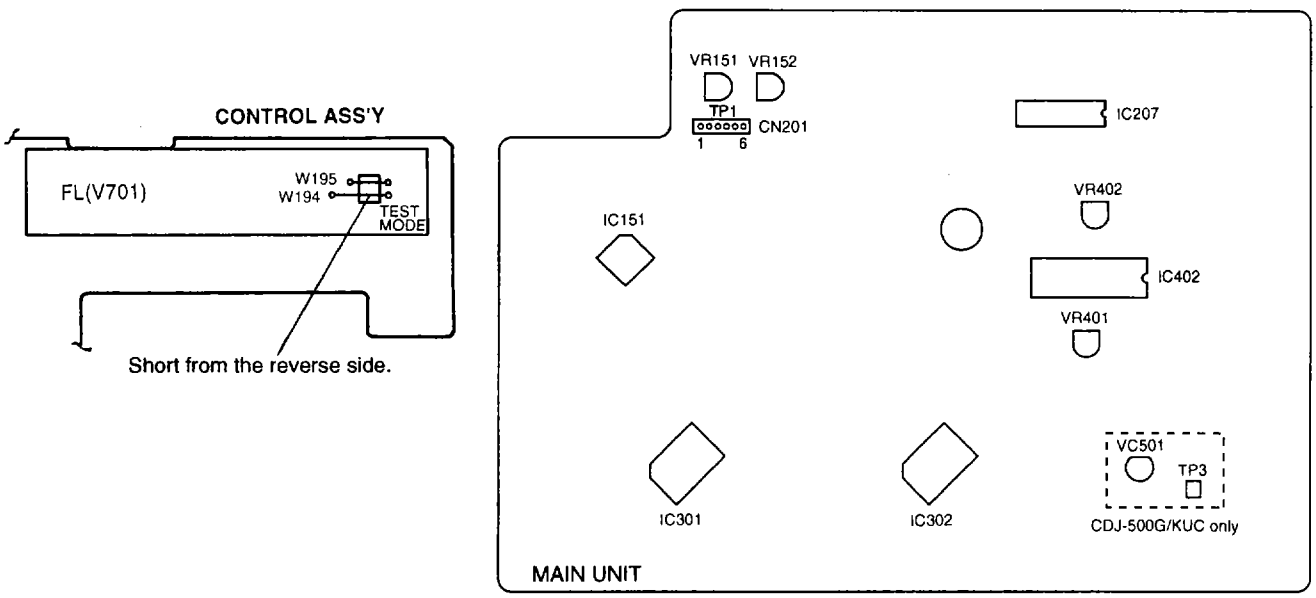


Figure 1. Adjustment Locations

● Notes

1.Use a 10:1 probe for the oscilloscope.
2.All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

This model has a test mode so that the adjustments and checks required for service can be carried out easily. When this model is in test mode, the keys on the control panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For this model,all adjustments are carried out in test mode.

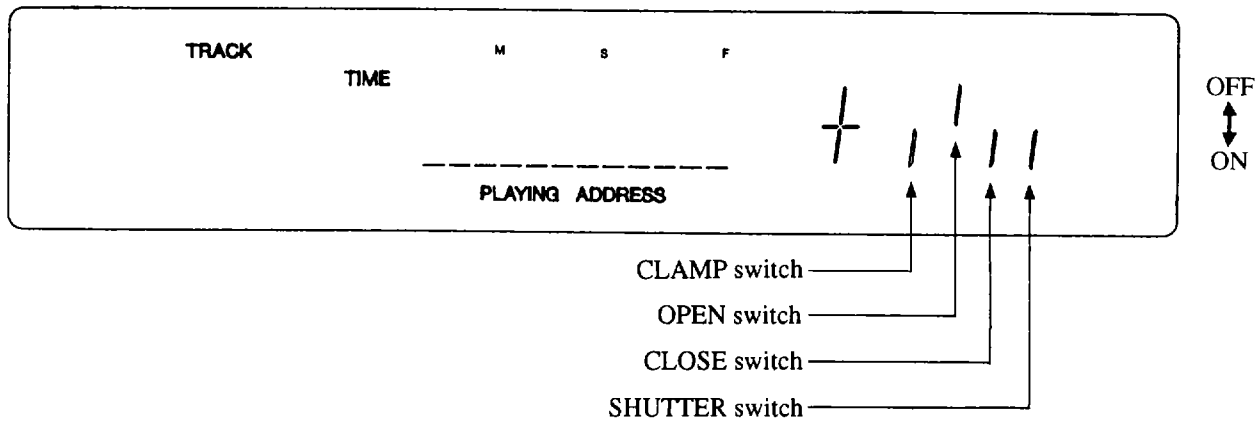
[Setting these models to test mode]

How to set this model into test mode.
1.Turn off the power switch.
2.Short the test mode jumpers with the door closed. (see Figure 1.)
3.Turn on the power switch.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on.If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1-3.

The display (FL indicator) is as follows when the test mode is entered.
The TEMPO display is as follows. Switches flipped down are ON, and switches flipped up are OFF. The switches are arranged from left to right: CLAMP switch, OPEN switch, CLOSE switch and SHUTTER switch. When the servo-mechanism unit is up, "+" is displayed. When the servo-mechanism unit is down, "-" is displayed.

Switch status display



[Release from test mode]

Here is the procedure for releasing the test mode:

1.Press the CUE key and stop all operations.

2.Turn off the power switch.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
▶▶I	TRACK SEARCH FWD	Focus servo close	The laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered three times and returned to its original position.
▶/II	PLAY/PAUSE	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outemost periphery of the disc, the same symptom is occurred.
▶/II	PLAY/PAUSE	Tracking servo close/ open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
◀◀	SEARCH REV	Carriage reverse (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▶▶	SEARCH FWD	Carriage forward (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	CUE	Stop	Switches off all the servos and initialized. When this key is pressed, the pick-up does not return to the inside.
▲	EJECT	Disc compartment door open	Open the disc compartment door. Pressing this key when the disc is turning stops the disc, then opens the door. When this key is pressed, the pick-up does not return to the inside.
	TIME MODE	Operation count display mode	The number of backed up clamp operations is displayed on the FL indicator up to 999999. In the test mode, the number of clamp operations is not counted.

Notes:

1. When a GFS error occurs as a result of playing a dirty or scratched disc, muting is turned on and off. However, the disc is not stopped, so sometimes the unit runs away. If this happens, either press the CUE key, or turn the power off.
2. Do not press the key during open/clamp, spindle kick and focus search operations. Make sure that each operation is completed before carrying out the next operation.

[How to play back a disc in test mode]

In test mode, since the operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

TRACK SEARCH FWD ▶▶I	Lights up the laser diode and closes the focus servo.
⇩	
PLAY/PAUSE ▶/II	Starts the spindle motor and closes the spindle servo.
⇩	
PLAY/PAUSE ▶/II	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

•Objective •Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
•Measurement instrument connections	Connect the oscilloscope to TP1, Pin6(FCS. ERR) [Settings] 5mV/division 10ms/division DC mode	•Player state •Adjustment location •Disc	Test mode, stopped (just the Power switch on) None None needed
[Procedure] Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0±50mV.			

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1-4, the pickup block may be defective.

2. Tracking Error Balance Verification

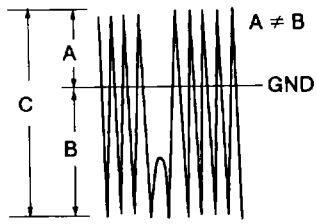
•Objective •Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
•Measurement instrument connections	Connect the oscilloscope to TP1, Pin2(TRK. ERR). This connection may be via a low pass filter. [Settings] 50mV/division 5ms/division DC mode	•Player state •Adjustment location •Disc	Test mode, focus and spindle servos closed and tracking servo open. None YEDS-7

[Procedure]

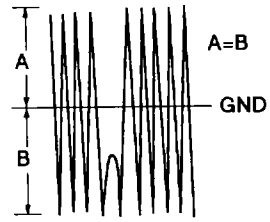
1. Move the pickup to midway across the disc(R=35mm)with the SEARCH FWD ▶▶ or ◀◀ key.
2. Press the TRACK SEARCH FWD ▶▶| key, then the PLAY/PAUSE ▶/❚❚ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscopes screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

$$\text{When } A \geqq B,\ \frac{A-B}{C} \times \frac{1}{2} \leqq 0.1$$

$$\text{When } A < B,\ \frac{B-A}{C} \times \frac{1}{2} \leqq 0.1$$



When there is a DC component



When there is no DC component

3. Pickup Radial / Tangential Tilt Adjustment

•Objective •Symptom when out of adjustment	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals. Sound broken; some discs can be played but not others.		
•Measurement instrument connections	Connect the oscilloscope to TP1, Pin1(RF). [Settings] 20mV/division 200ns/division AC mode	•Player state •Adjustment location •Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw 8cm disc (However, those with approx. 20 min of audio signal (music).)

[Procedure]

1. Press the SEARCH FWD ▶▶ or ◀◀ key to move the pickup to the external circumference of the disc.
   Press the TRACK SEARCH FWD ▶▶| key, the PLAY/PAUSE ▶/❚❚ key, then the PLAY/PAUSE ▶/❚❚ key in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly. (Figure 3).
   ※The ball-point type hexagonal wrench is used because the disc will get in the way if a normal hexagonal wrench is used.
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.

Note: Radial and tangential mean the directions relative to the disc shown in Figure 2.

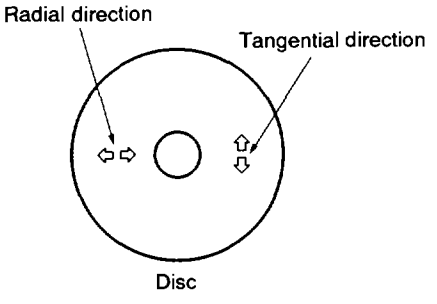
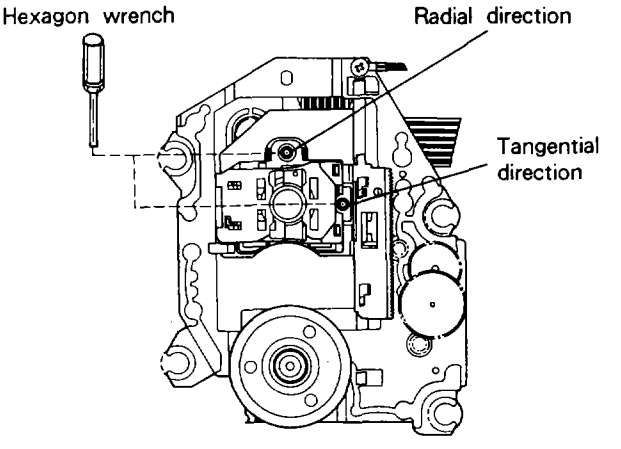


Figure 2



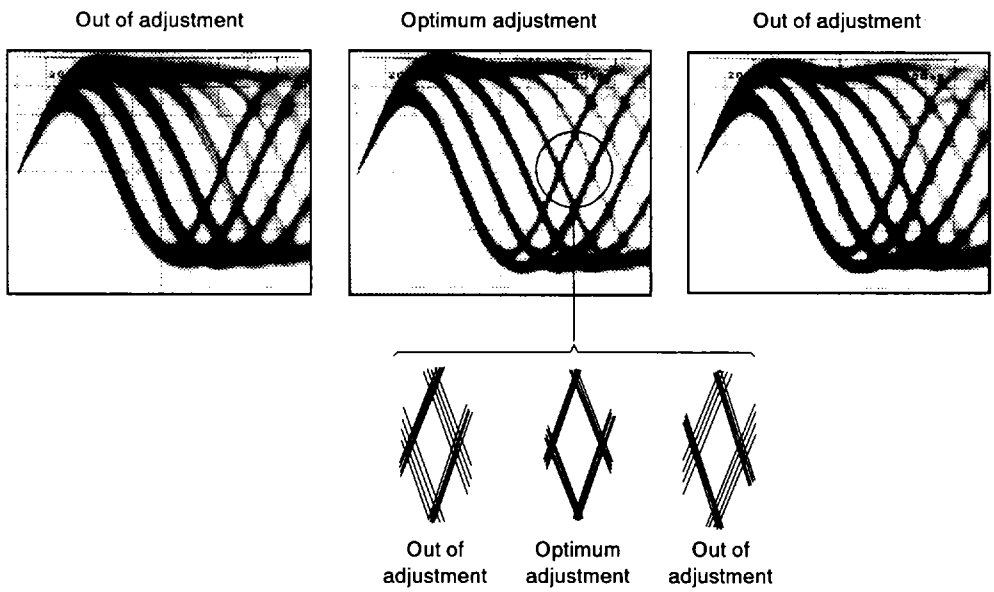


Figure 3 Eye pattern

4. RF Level Verification

•Objective •Symptom when out of adjustment	To verify the playback RF signal amplitude No play or no search		
•Measurement instrument connections	Connect the oscilloscope to TP1, Pin1(RF). [Settings] 50mV/division 10ms/division AC mode	•Player state •Adjustment location •Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc(R=35mm)with the SEARCH FWD ▶▶ or ◀◀ key,then press the TRACK SEARCH FWD ▶▶| key, the PLAY/PAUSE ▶/❚❚ key, then the PLAY/PAUSE ▶/❚❚ key in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2 Vp-p±0.2V.

5. Focus Servo Loop Gain Adjustment

•Objective •Symptom when out of adjustment	To optimize the focus servo loop gain. Playback does not start or focus actuator noisy.		
•Measurement instrument connections	See figure 4. [Settings] CH1 CH2 20mV/division 5mV/division X-Y mode	•Player state •Adjustment location •Disc	Test mode, play VR152 (FCS. GAN) YEDS-7

[Procedure]

1. Set the signal generator output to 1.2kHz and 1Vp-p.
2. Press the SEARCH FWD ▶▶ or ◀◀ key to move the pickup to halfway across the disc(R=35mm),then press the TRACK SEARCH FWD ▶▶| key, the PLAY/PAUSE ▶/❚❚ key, then the PLAY/PAUSE ▶/❚❚ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

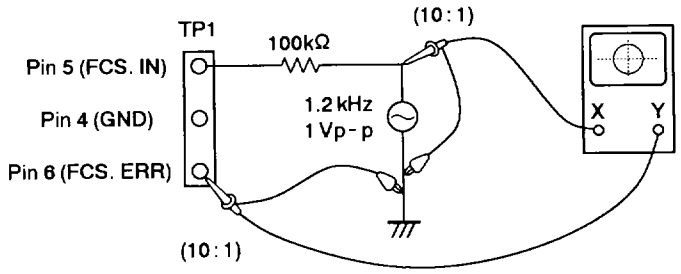
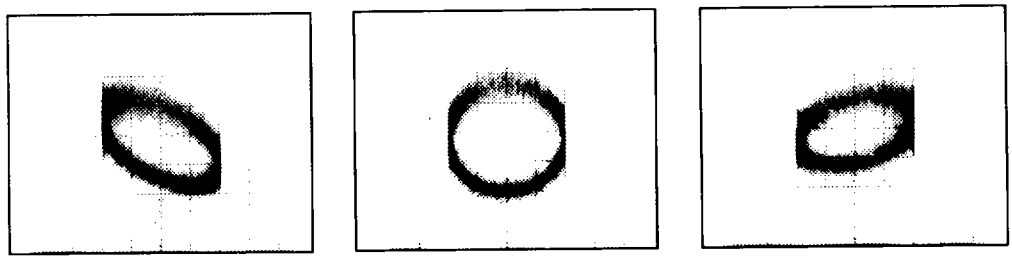


Figure 4

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

6. Tracking Servo Loop Gain Adjustment

•Objective •Symptom when out of adjustment	To optimize the tracking servo loop gain. Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
•Measurement instrument connections	See figure 5. [Settings] CH1 CH2 50mV/division 20mV/division X-Y mode	•Player state •Adjustment location •Disc	Test mode, play VR151 (TRK. GAN) YEDS-7

[Procedure]

1. Set the signal generator output to 1.2kHz and 2Vp-p.
2. Press the SEARCH FWD ▶▶ or ◀◀ key to move the pickup to halfway across the disc(R=35mm),then press the TRACK SEARCH FWD ▶▶| key, the PLAY/PAUSE ▶/❚❚ key, then the PLAY/PAUSE ▶/❚❚ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

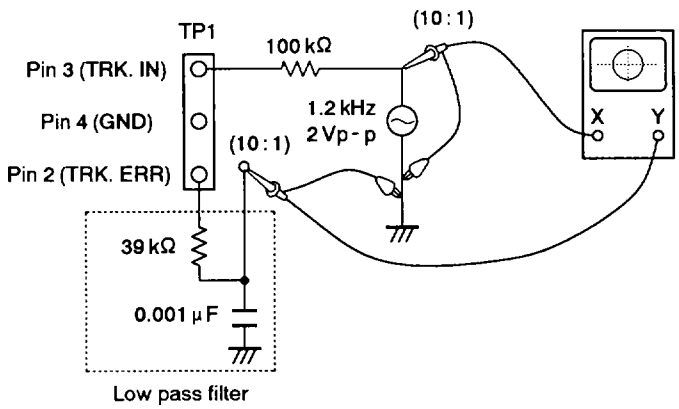
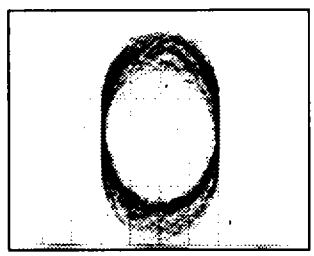


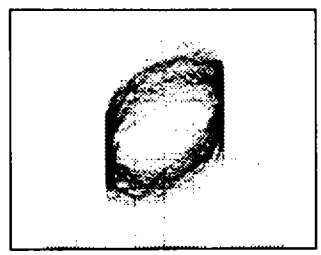
Figure 5

Tracking Gain Adjustment

Higher gain



Optimum gain



Lower gain

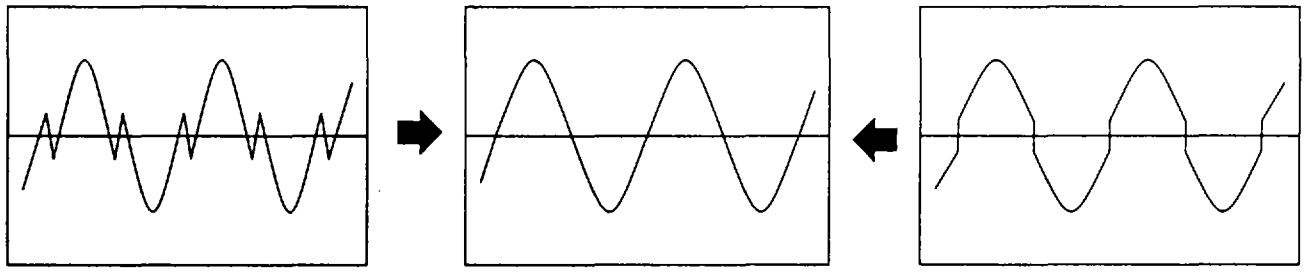
7. MSB Adjustment

•Objective •Symptom when out of adjustment	To optimize the MSB level of the DAC Audio distortion		
•Measurement instrument connections	Connect the oscilloscope to AUDIO OUT L or R terminal (JA801) [Settings] 5mV/division 0.2ms/division	•Player state •Adjustment location •Disc	Test mode, play VR402(MSB ADJ.L) VR401(MSB ADJ.R) YEDS-7

[Procedure]

1. Playback the track20 (-60dB, 1KHz, Lch, Rch) of the test disc (YEDS-7). Connect the oscilloscope to the Lch of the AUDIO OUT terminal (JA801), and observe the audio output waveform.
2. Adjust VR402 (MSB ADJ.L) so that the sine wave is obtained on oscilloscope.
3. Adjust VR401 (MSB ADJ.R) in the same way.

● ZERO cross distortion waveform



NG OK NG

8. 3.58MHz Free-run Frequency Adjustment (CDJ-500G/KUC only)

•Objective •Symptom when out of adjustment	To optimize the master clock frequency of the IC501 Color phase shift of CDG output image, no color lock		
•Measurement instrument connections	See figure 6. [Settings] CH1 CH2 1V/division 1V/division 50ns/division	•Player state •Adjustment location •Disc	Test mode,stopped (Just the power switch on) VC501 None needed

[Procedure]

1. Adjust the output of the signal generator to 3.579545 MHz.
2. Adjust VC501 so that both CH1 and CH2 waveforms on the oscilloscope stop. (tolerance: ±3Hz or less)

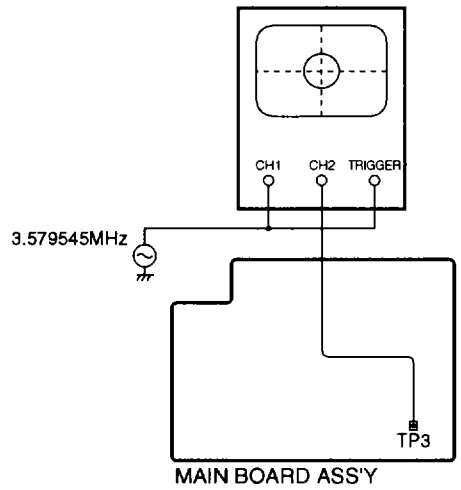
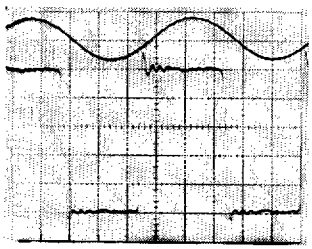
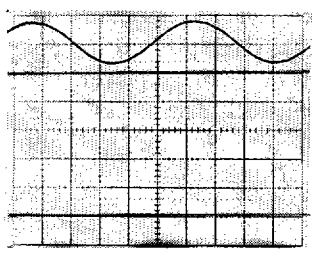


Figure 6.



<Correct adjustment>



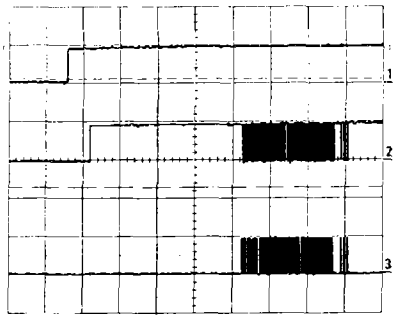
<Wrong adjustment>

1.8 TROUBLESHOOTING

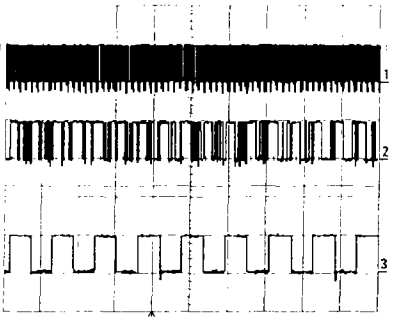
● How to Check Operation of the DSP IC (IC302:μPD6383GF)

(1) Checking the system clock frequency
Make sure that the clock frequency is 24.576 MHz (±5%) at XO (pin No.40).

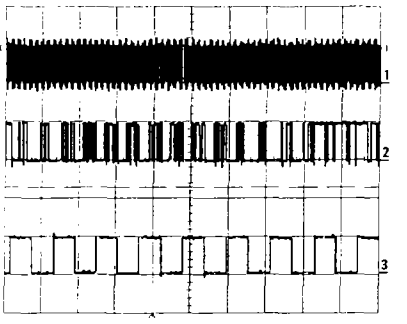
(2) Checking data transfer of DSP internal initialization
In order to operate the DSP, the initialize data (DSP internal registers and operation program) must be transferred from the system control microcomputer (IC701 :PD4543A).
After turning the power on, make sure that $\overline{RST}$ (pin No.9) becomes High (5V), and that the clock pulse and data are input for about 150 ms to $\overline{SCK}$ (pin No.3) and SI (pin No.4).



1: $\overline{RST}$ 5V/div, 50m sec/div
2: $\overline{SCK}$ 5V/div, 50m sec/div
3: SI 5V/div, 50m sec/div



1: BCLKI 5V/div, 20μ sec/div
2: DI1 5V/div, 20μ sec/div
3: LRCKI 5V/div, 20μ sec/div

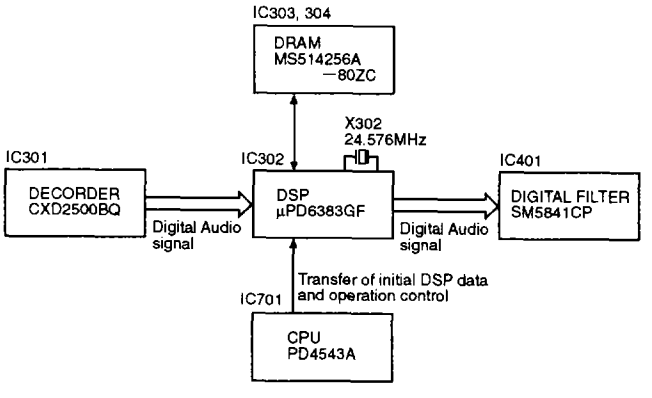


1: BCLKO 5V/div, 20μ sec/div
2: DO1 5V/div, 20μ sec/div
3: LRCKO 5V/div, 20μ sec/div

(3) Checking the DSP operation control terminal
Make sure that a High signal (5V) is being input to RQ1 (pin No.86) and RQ2 (pin No.87) during operation of the player.

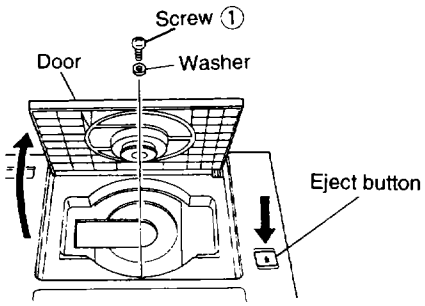
(4) Checking the digital audio I/O terminal
Make sure that the bit clock, data and LR clock are being input to BCLKI (pin No.17), DI1 (pin No.20) and LRCKI (pin No.18) during operation of the player.
Likewise, make sure that the bit clock, data and LR clock are being output to BCLKO (pin No.26), DO1 (pin No.23) and LRCKO (pin No.27).

(5) DSP peripheral circuit block diagram

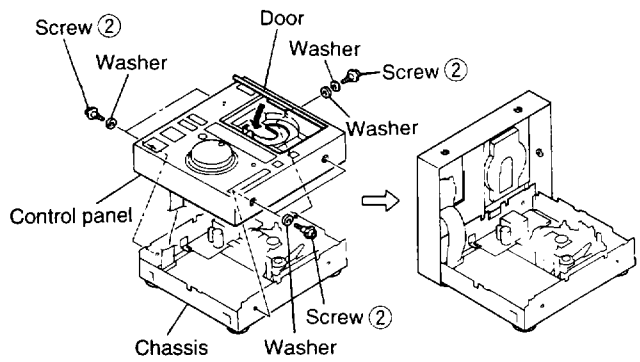


● Disengaging The Control Panel

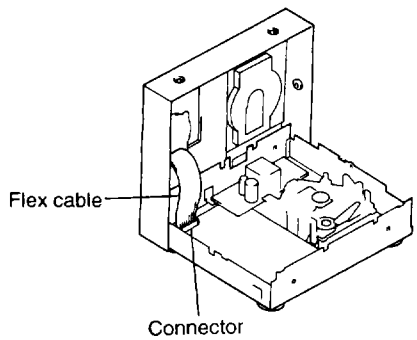
1. Turn on the power and press the Eject button to open the door (note 1).
2. Unplug the power cord.
3. Remove the screw ① which is under the door.



4. Remove the five screws ② on the side surface of the control panel.
5. Close the door and then disengage the control panel from the chassis.
6. Insert the control panel under the chassis and secure it.



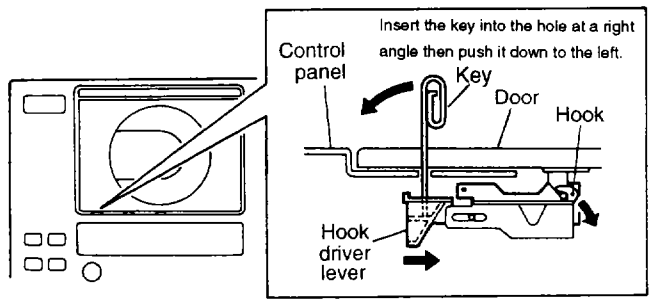
7. When disconnecting the flexible cable from the connector for maintenance, etc., be sure to unplug the power cord and then remove the flexible cable without twisting it by holding it with both hands and by both ends.
(Even when the power is off, a residual electrical charge remains in the capacitors and the like. If the terminal of the flexible cable and the terminal of the connector accidentally touch damage to components may occur.)



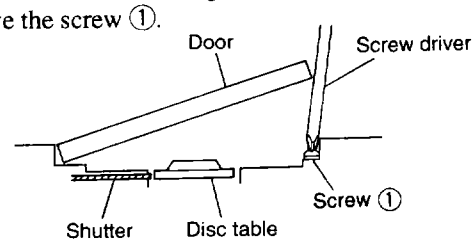
(Note 1) Important
Opening the door and disengaging the control panel in an emergency

This model is equipped with a mechanism that enables you to open the door manually if it does not open even when the Eject button is pressed.

1. Unplug the power cord.
2. Prepare a key by using a zem clip (a metal rod with a diameter of approximately 1mm and a length of 50mm).



3. By pushing the key to the left after inserting it into the hole at a right angle, as shown in the figure above, you can open the door by moving the hook drive lever.
4. Open the door wide enough to insert a screw driver and remove the screw ①.



(Note) Do not open the door any wider than necessary because, depending upon the position of the servo mechanism, the disc table may come into contact with the shutter, which may damage these components.

5. Be sure to close the door after removing the screw.
6. You can separate the control panel from the chassis by removing all the screws ② on the control panel.
7. The door opens completely when the hook drive lever on the control panel is moved from the inside of the control panel in the same direction as in 3.

● Error display

The error No. is displayed on the FL indicator when a player operation error occurs during normal operation.

Error No.	E-72	E-83	E-91
Error Name	TOC READ ERROR	PLAYER ERROR	MECHANICAL TIME OUT
Description	TOC data on disc could not be read after 20 seconds.	The disc cannot be played normally. GFS No Good judgment: 2 sec x 3 times continuous. Focus No Good judgment: 0.1 sec x 3 times continuous.	Operation is not completed after maximum set operating time is exceeded. Clamp: 4 sec Open: 4 sec
Probable Cause	• Disc is dirty. • Problem with the pick-up.	• Disc is dirty. • Disc is scratched.	• Object is on door. • Trouble at door open/close mechanism.

1.9 PARTS LIST FOR EXPLODED VIEWS AND PACKING

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

(1) PACKING

Mark	No.	Description	Parts No.
	1	Cord with plug	VDE-010
NSP	2	Vinyl bag	REG-013
	3	Caution220V(SELM only)	ARR-003
	4	Operating instructions(KUC only) (English)	DRB1161
	4	Operating instructions(SELM only) (English, French, Germany, Italy, Dutch, Swedish, Spanish, Chinese)	DRB1166
NSP	5	Vinyl bag	VHL-014
	6	Screw	IBZ30P180FMC
	7	Pad L	DHA1290
	8	pad R	DHA1291
	9	Mirror mat	VHL1006
	10	Packing(KUC only)	DHG1586
	10	Packing(SELM only)	DHG1587
NSP	11	Follow up card(KUC only)	DRY1032
NSP	12	Vinyl bag(KUC only)	DHL1011
	13	Spacer	DLA1637

(2) EXTERIOR SECTION

Mark	No.	Description	Parts No.
	1	Roller holder ass'y	DXB1516
	2	Door ass'y(KUC only)	DXA1714
	2	Door ass'y(SELM only)	DXA1715
NSP	3	Yoke(FE)	PNB1216
NSP	4	Clamp magnet	PMF1014
	5	Clamper holder	DNH1920
NSP	6	Clamper (under)	DNK1791
	7	Drive cam A ass'y	DXB1513
	8	Cam roller	DLA1629
	9	Door cushion A	DEC1777
	10	Door cushion B	DEC1778
	11	Door cushion C	DEC1779
	12	Shutter guide	DNK2940
	13	Play knob	DAC1809
	14	Cue knob	DAC1810
	15	Spring	DBH1253
	16	Net	DED1087
	17	Door holder	DNK2952
	18	Damper ass'y	REC1005
	19	Cushion C	DEC1781
	20	Cushion D	DEC1782
	21	Shutter stop rubber	DEB1275
	22	Slide knob	DNK2936
	23	Door cushion D	DEC1780
	24	Door stop rubber	DEB1274
	25	Control panel ass'y(KUC only)	DXA1725
	25	Control panel ass'y(SELM only)	DXA1727
	26	Jog dial	DNK2932
	27	Thrust stay	DNH1401
	28	Retainer	DNK1849
	29	Steel ball	VNX1006
	30	Thrust stay B	DNH1925
	31	Jog holder ass'y	DXA1693
	32	Smoother	DNK2933
	33	Spring J	DBH1252
	34	Encorder disc ass'y	DXB1160
	35	Lever spring	DBH1254
	36	Lever	DNK2937
	37	Hook drive lever	DNK2945
	38	Hook ass'y	DXB1509
	39	Switch holder A ass'y	DXB1510
	40	Knob A	DNK2931
	41	Loop knob	DNK2943
	42	Limiter	DNK2949
	43	Power knob	DNK2942
	44	TEMPO knob ass'y	DXA1680
	45	Eject knob ass'y	DXA1679
	46	VR packing	DEB1291
	47	VR plate	DNF1485
	48	Time mode knob	DNK2944
	49	VR spring	DBK1088
	50	Shutter	DNK2939
NSP	51	Encorder disc	DNH1248
	52	Lever switch	DSK1003
	53	Door spring	DBH1255
	54	Drive cam B ass'y	DXB1515
	55	Drive cam C	DNH1927
NSP	56	Photo interrupter ass'y	DWX1438
	57	Control ass'y	DWG1415
NSP	58	Power SW ass'y	DWS1213
NSP	59	Eject SW ass'y	DWS1214
	60	Slider ass'y	DXX2225
	61	Rubber spacer B	DEB1272
	62	Rubber cap	DEB1273
NSP	63	Knob base	DNK2950
NSP	64	TEMPO cap	DAC1799
NSP	65	Eject cap	DAC1798
	66	Float rubber B	DEB1270
	67	Knob spring	DBH1256
NSP	68	Mechanism ass'y	DXA1684
	69	40P F•F•C/60V	DDD1085
	70	Main unit(KUC only)	DWX1437
	70	Main unit(SELM only)	DWX1441
NSP	71	Audio out ass'y(KUC only)	DWX1439
NSP	71	Audio out ass'y(SELM only)	DWX1442
	72	Transformer ass'y(KUC only)	DWR1185
	72	Transformer ass'y(SELM only)	DWR1186
NSP	73	Transistor unit	DWX1484
	74	Plate	DNH1921
	75	Shield plate	DNH1917
⚠	76	Fuse(500mA)(KUC only)	VEK1009
⚠	76	Fuse(315mA)(SELM only)	REK-095
⚠	77	Power transformer(120V)(KUC only)	DTT1104
⚠	77	Power transformer(110, 120; 220-230, 240V)(SELM only)	DTT1105
⚠	78	Power cord with plug(KUC only)	DDG1063
⚠	78	Power cord with plug(SELM only)	PDG1003
	79	Damp cushion A	DEC1366
NSP	80	Cable clamper	REC1182

Mark	No.	Description	Parts No.
NSP	81	Rubber spacer	DEB1150
NSP	82	PCB support	VEC1508
	83	Cushion A	DEC1775
NSP	84	Holder	PNW2343
	85	Cushion B	DEC1776
NSP	86	Chassis	DNA1151
	87	PCB support	DEC1773
NSP	88	Cord clamper	Z06-060
	89	Rear panel(KUC only)	DNC1359
	89	Rear panel(SELM only)	DNC1360
	90	Rubber spacer C	DEB1276
	91	Rubber spacer A	DEB1271
	92	Float rubber B	DEB1270
	93	Cushion	DEB1279
	94	Insulator ass'y(B)	VXA1414
NSP	95	Insulator	VNK1353
NSP	96	Cushion	VEC1297
	97	Caution label(G)(SELM only)	VRW329
	98	Insulator ass'y	VXA1454
	99	SH screw	PBA1033
	100	Washer	WA26D047D025
	101	E ring	YE12FUC
	102	E ring	YE15FUC
	103	E ring	YE20FUC
	104	E ring	YE30FUC
	105	Screw	AMZ30P040FMC
	106	Screw	BPZ20P080FZK
	107	Screw	BPZ26P050FMC
	108	Screw	BPZ26P060FNI
	109	Screw	BPZ26P060FZK
	110	Screw	BPZ26P080FZK
	111	Screw	BPZ30P080FMC
	112	Screw	IPZ26P060FMC
	113	Screw	ZMD26H030FBT
	114	Screw	BBZ30P060FMC
	115	Screw	BBZ30P080FZK
	116	Screw	BBZ30P160FZK
	117	Caution label (F) (SELM only)	VRW-328
	118	Caution label (HE) (SELM only)	PRW1233
	119	Caution label (SELM only)	VRW1094
	120	Caution label (SELM only)	DRW1603
	121	Line voltage selector(SELM only)	RSB1009
	122	Conector (2P)	DDE1082
	123	Strain relief(KUC only)	VEC-201
	123	Strain relief(SELM only)	CM-22B
	124	Screw	DBA1079
	125	Screw cap	DNK2959
	126	Door plate	DAP1045
	127	Door reinforcement plate	DNH1946
	128	65 label(KUC only)	ORW1069
	129	Panel	DAH1750
	130	Slide sheet	DAH1751
	131	Ring	YS40FBT
	132	Sheet A	DEC1801
	133	Sheet B	DEC1802
	134	Sheet C	DEC1803
	135	Screw	CPZ26P060FZK
	136	Screw	BBZ30P180FMC
	137	Screw	BMZ40P060FMC
	138	Door ass'y-S(KUC only)	DXX2203
	138	Door ass'y-S(SELM only)	DXX2204
	139	Stoper ring	YS20FBT
NSP	140	J bush	DLA1624
	141	Washer	WA52D080D025
	142	Washer	WA42D080D025
NSP	145	Cushion	VEC1224

(3) MECHANISM ASS'Y

Mark	No.	Description	Parts No.
NSP	1	Servo mechanism ass'y	DXA1685
	2	Binder	Z09-056
	3	Float rubber	PEB1132
	4	Float base(ABS)	PNW2032
	5	Clamp cam(ABS)	DNK3029
	6	Rubber belt	PEB1193
	7	Gear pulley(POM)	PNW2034
	8	Drive gear 2(PON)	PNW2369
	9	Release plate spring	DBH1257
	10	Release lever	DNK2938
	11	Release lever spring	DBH1258
	12	Switch holder B ass'y	DXB1526
	13	Connector ass'Y(2p)	DDE1082
	14	Push switch	DSG1013
	15	Loading base(ABS)	DNK3030
	16	Lever switch	DSK1003
	17	Motor pulley	PNW1634
	18	DC motor/0.75W	PXM1010
	19	Pickup ass'y-S	DXX2185
	20	Disc table(PC)	PNW1608
	21	Gear 3	PNW2054
	22	Gear 2	PNW2053
NSP	23	Earth lead unit	PDF1074
	24	Carriage base	PNW2445
	25	Guide bar	PLA1094
	26	DC motor ass'y(SPINDLE)	DXM1063
	27	Gear 1	PNW2052
	28	Pinion gear	PNW2055
NSP	29	DC motor(CARRIAGE)	PXM1027
	30	DC motor ass'y	PEA1246
NSP	31	Gear stopper	PNB1303
NSP	32	CDG mecha PCB unit	DWX1436
	33	PWB holder	PNW2057
	34	Washer	WT16D032D025
	35	Washer	WT12D032D025
	36	Screw	PBA1048
	37	Screw	Z39-019
	38	Screw	PMZ26P040FMC
	39	Screw	BMZ20P060FMC
	40	Screw	BPZ26P080FMC
	41	Screw	JFZ17P025FZK
	42	Screw	JFZ20P030FNI
	43	Screw	BBZ26P060FMC
	44	Screw	BPZ20P060FMC
	45	Screw	BPZ26P100FMC
	46	Connector ass'y(4P)	DEE1083
	47	Connector ass'y(4P)	DKP2863
	48	Connector ass'y(11P)	DKP2861
	49	Release plate	DXB1511
	50	Washer	VEC1254
	51	Flexible guide	DNK2946

NOTE 1. Regular inspection / Cleaning

When performing regular inspections, pay particularly careful attention to the parts with the part No. in ☐ in the parts list.

NOTE 2. Inspection / Cleaning

- The sliding sections of the drive cam B and the drive cam C (Cleaning / Application of grease)
- The lens in the PU section (Cleaning)

1.10 PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561 ..... RD1/8PM 5 6 1 J
47kΩ → 47 × 10³ → 473 ..... RD1/4PS 4 7 3 J
0.5Ω → 0R5 ..... RN2H 0 R 5 K
1Ω → 010 ..... RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

Mark	No.	Description	Parts No.
LIST OF ASSEMBLES			
NSP		MOTHER BOARD ASS'Y(KUC TYPE)	DWM1390
NSP		MOTHER BOARD ASS'Y(SELM TYPE)	DWM1419
		├TRANSFORMER ASS'Y(KUC TYPE)	DWR1185
		├TRANSFORMER ASS'Y(SELM TYPE)	DWR1186
		├MAIN UNIT(KUC TYPE)	DWX1437
		├MAIN UNIT(SELM TYPE)	DWX1441
		├AUDIO OUT ASS'Y(KUC TYPE)	DWX1439
		├AUDIO OUT ASS'Y(SELM TYPE)	DWX1442
NSP		└TRANSISTOR UNIT	DWX1484
NSP		SUB BOARD ASS'Y	DWX1397
		├CONTROL ASS'Y	DWG1415
NSP		├POWER SW ASS'Y	DWS1213
NSP		├EJECT SW ASS'Y	DWS1214
NSP		├PHOTO INTERRUPTER ASS'Y	DWX1438
		└SLIDER ASS'Y	DXX2225
NSP		MECHANISM ASS'Y	DXA1684
NSP		└CDG MECHA PCB UNIT	DWX1436
CONTROL ASS'Y			
SEMICONDUCTORS			
		IC709	NJM79L06A
		IC702	NM93C46N
		IC701	PD4543A
		Q701-Q703, Q708	2SA933S
		Q704-Q707	2SC1740S
		D708-D713, D716-D723	1SS254
		D705, D706	GL3HY43
		D701, D702	GL5EG8
		D703, D704	GL5HY8
SWITCHES AND RELAYS			
		S709	DSG1016
		S704, S707	DSG1046
		S701, S708	PSG1006
		S702, S703, S705, S706	RSG-143

Mark	No.	Description	Parts No.
CAPACITORS			
		C701	CEAS101M10
		C704, C705, C707, C708, C710-C713	CKCYF103Z50
		C706, C709	CKCYF473Z50
RESISTORS			
		R719	RA4T473J
		R720	RA6T223J
		Other Resistors	RD1/6PM□□□J
OTHERS			
	CN603	CONNECTOR(40P)	HLEM40R
	CN606	CONNECTOR(2P)	2-173979-2
	J652	CONNECTOR ASSEMBLY	PDE1170
	V701	FL INDICATOR TUBE	DEL1021
	X701	CERAMIC RESONATOR	VSS1014
TRANSFORMER ASS'Y			
SEMICONDUCTORS			
⚠		IC102	ICP-N15
⚠		IC101	ICP-N25
⚠		IC20	M5290P
⚠		Q2	2SD1913
		Q3	2SD2144S
⚠		D52	1ES2
		D54	MTZJ22A
⚠		D11-D14	RB100A
COILS AND FILTERS			
⚠	L1	FILTER	VTL-004
CAPACITORS			
		C31, C60	CEAS010M50
		C61	CEAS100M50
		C52(KUC only)	CEAS221M50
		C52(100/100)(SELM only)	DCH1070
		C53	CEAS470M50
		C27, C28	CEAS471M10
		C26(10000/16)	VCH1054
		C11, C13, C15, C16(KUC only)	CKCYF103Z50
		C11, C13-C17(SELM only)	CKCYF473Z50
		C29, C30	CKCYF103Z50
⚠	C1, C2	(10000/400)(KUC only)	RCG-009
⚠	C1, C2	(0.01/400)(SELM only)	VCG-048
	C25	(18000/16)	DCH1069

Mark	No.	Description	Parts No.
RESISTORS			
⚠	R1(KUC only)		RD1/2PM225J
	R11, R12		RD1/4PM472J
	Other Resistors		RD1/6PM□□□J
OTHERS			
	J2	PARALLEL CORD	DSWW0315E
⚠		TERMINAL	RKC-061
		EARTH PLATE	VNF-091
POWER SW ASS'Y			
SEMICONDUCTORS			
	Q651		2SB1185-F8
	D651		MTZJ33B
SWITCHES AND RELAYS			
	S650		PSG1007
CAPACITORS			
	C652		CEAS220M50
RESISTORS			
	All Resistors		RD1/6PM□□□J
EJECT SW ASS'Y			
SEMICONDUCTORS			
	D601		GL5HY8
SWITCHES AND RELAYS			
	S610, S611		PSG1006
RESISTORS			
	All Resistors		RD1/6PM□□□J
CDG MECHA PCB UNIT			
SWITCHES AND RELAYS			
	S610		DSG1016
OTHERS			
	CN610	CONNECTOR(4P)	VKN1061
		PC BOARD	DNP1575
MAIN UNIT			
SEMICONDUCTORS			
	IC151		CXA1372Q
	IC301		CXD2500BQ
	IC202, IC203		LA6517
	IC207		LB1687
	IC501(KUC only)		LC7870NE
	IC502(KUC only)		MB81464-12P
	IC503(KUC only)		MM1031XS
	IC303, IC304		MS514256A-80ZC
	IC204		NJM2902N
	IC201, IC405		NJM4558DX
	IC406(KUC only)		NJM4558DX
	IC402		PCM1700P-L
	IC401		SM5841CP
	IC381		SN74LS624N
	IC382		TC74HCT04AF
	IC302		UPD6383GF
	IC206		XRU4053B
	Q403, Q404, Q433, Q434		2SD2144S
	Q406		XDA124ES
	Q405		XDC124ES

Mark	No.	Description	Parts No.
	D453, D454(KUC only)		1SS254
COILS AND FILTERS			
	L301, L331, L401, L601, L602		LAU010J
	L339(SELM only)		LFA010K
	L604, L605(SELM only)		VTH1024
CAPACITORS			
	C506, C507(KUC only)		CCCCH050C50
	C310, C311, C331, C332		CCCCH150J50
	C383		CCCCH220J50
	C509(KUC only)		CEAS010M50
	C151-C153, C401		CEAS101M10
	C501-C503(KUC only)		CEAS101M10
	C81, C82		CEAS101M10
	C83, C84		CEAS101M25
	C433, C434		CEAS220M25
	C216, C217, C303, C330, C336		CEAS330M16
	C338, C339, C381, C382, C334		CEAS330M16
	C385, C386, C411, C412		CEAS330M16
	C508(KUC only)		CEAS330M16
	C249		CEAS330M25
	C415, C416		CEAS3R3M50
	C242, C243, C413, C414		CEAS470M50
	C512(KUC only)		CEAS471M10
	C302		CEAS471M6R3
	C160, C162		CEAS4R7M50
	C309		CEASR47M50
	C161		CFTXA104J50
	C157, C164, C169, C308		CGCYX103K25
	C158, C159, C163, C230-C232		CGCYX104K25
	C236, C241, C246-C248, C301		CGCYX104K25
	C337		CGCYX104K25
	C504, C505(KUC only)		CGCYX104K25
	C156, C168		CGCYX333K25
	C307		CGCYX473K25
	C306, C417, C418		CKCYB152K50
	C155		CKCYB182K50
	C170		CKCYB332K50
	C171, C172		CKCYB472K50
	C384(KUC only)		CKCYF103Z50
	C384(SELM only)		CEAS101M10
	C167, C204, C205, C207		CKCYF103Z50
	C234, C235, C237-C240, C329		CKCYF103Z50
	C333, C335, C402, C403		CKCYF103Z50
	C510, C513(KUC only)		CKCYF103Z50
	C321(SELM only)		CKCYF473Z50
	C429, C430		CQMA152J50
	C461(KUC only)		CQMA393J50
	VC501(20pF)(KUC only)		DCM1005
RESISTORS			
	R249		RD1/2PMFR47J
	R238, R239, R244, R245		RN1/6PQ1002F
	VR151, VR152(22k)		RCP1046
	VR401, VR402(100k)		RCP1048
	Other Resistors		RD1/6PM□□□J
OTHERS			
	CN11	JUMPER CONNECTOR(13P)	52147-1310
	CN101	CONNECTOR(12P)	12FMZ-ABT
	CN201	CONNECTOR(6P)	RKP-533
	CN205	CONNECTOR(2P)	2-173981-2
	CN351	CONNCETOR(40P)	HLEM40S

Mark	No.	Description	Parts No.
	CN402	CONNECTOR(9P)(KUC only)	KPC9
		CONNECTOR(5P)(SELM only)	KPC5
		EARTH PLATE	VNF-091
	X301	XTAL RESONATOR	PSS1008
	X302	CERAMIC RESONATOR	DSS1054
	X501	CRYSTAL RESONATOR (KUC only)	VSS1026
		PCB BINDER	VEF1008

PHOTO INTERRUPTER ASS'Y

SEMICONDUCTORS

	IC682	GP1A30R

CAPACITORS

	C651	CKCYF223Z50

RESISTORS

	All Resistors	RD1/6PM□□□J

AUDIO OUT ASS'Y

CAPACITORS

	C804, C810(KUC only)	CKCYF103Z50
	C805, C808	CKCYF103Z50
	C809	CKCYF473Z50
	C801, C802	CQMA152J50
	C803(KUC only)	CQMA471J50
	C815(SELM only)	CKCYB102K50

RESISTORS

	All Resistors	RD1/6PM□□□J

OTHERS

	JA801 JACK	PKB1009
	JA802 JACK(KUC only)	VKB1029
	JA803 JACK	RKN1004
	EARTH PLATE	VNF-091

TRANSISTOR UNIT

SEMICONDUCTORS

⚠	Q1	2SB1274

CAPACITORS

	C54	CKCYF473Z50

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COMPACT DISC PLAYER

CDJ-500G
CDJ-500

CHAPTER 2

CONTENTS

CHAPTER 2
2.1 PACKING AND EXPLODED VIEWS 2-2
2.2 SCHEMATIC AND PCB CONECTION DIAGRAMS 2-7

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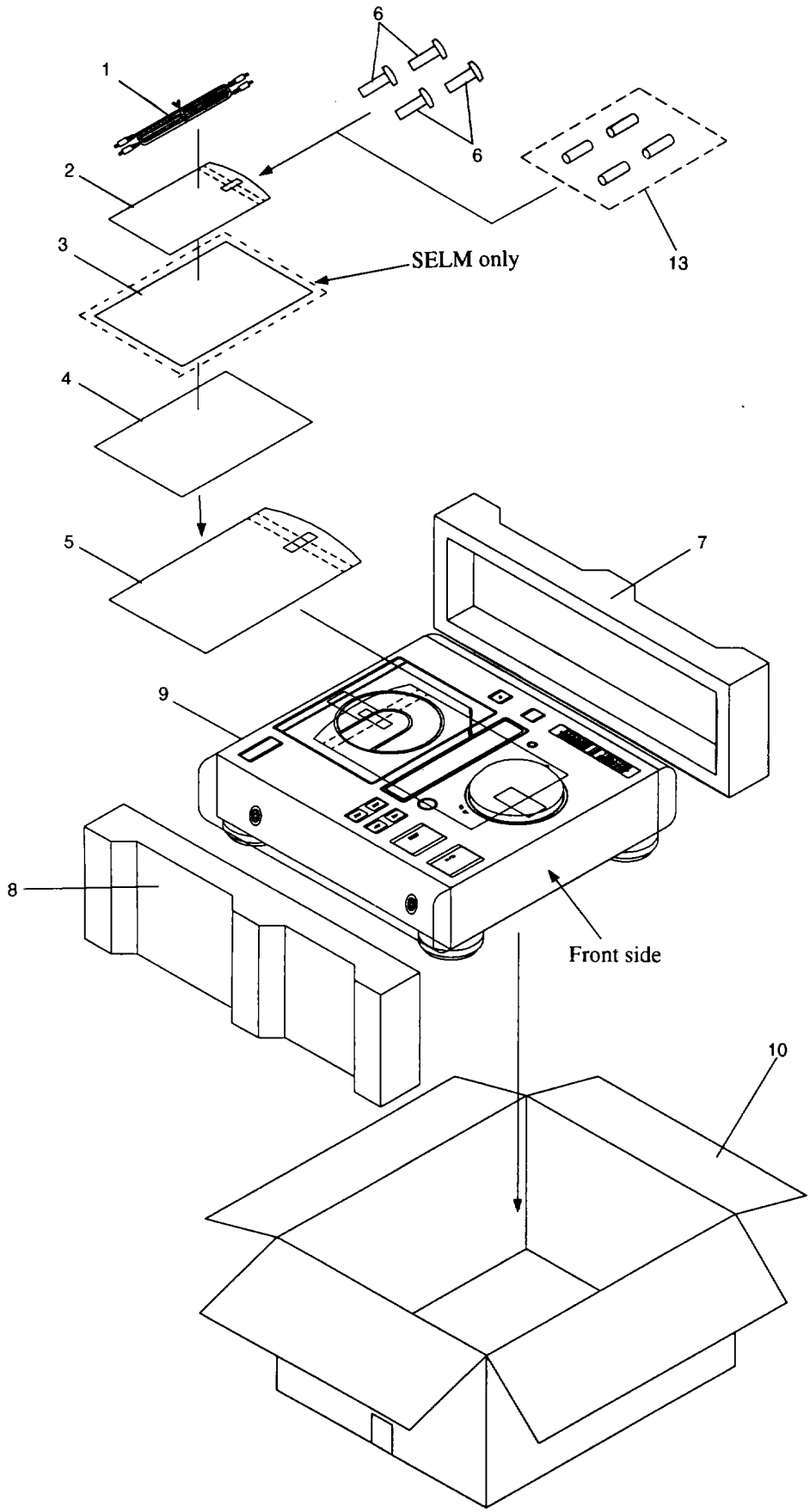
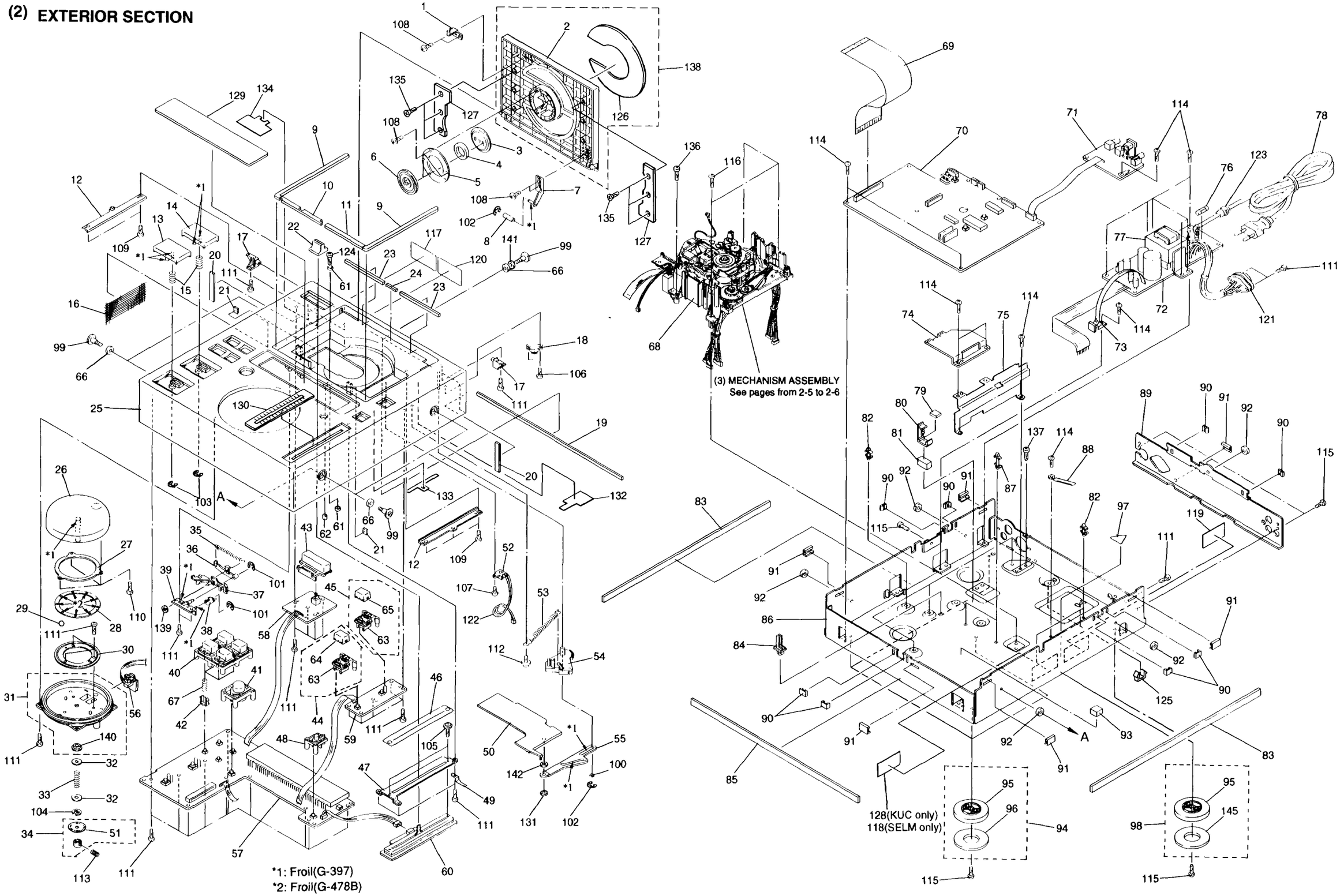
T-AAI MAY. 1994 Printed in Japan

2.1 PACKING AND EXPLODED VIEWS

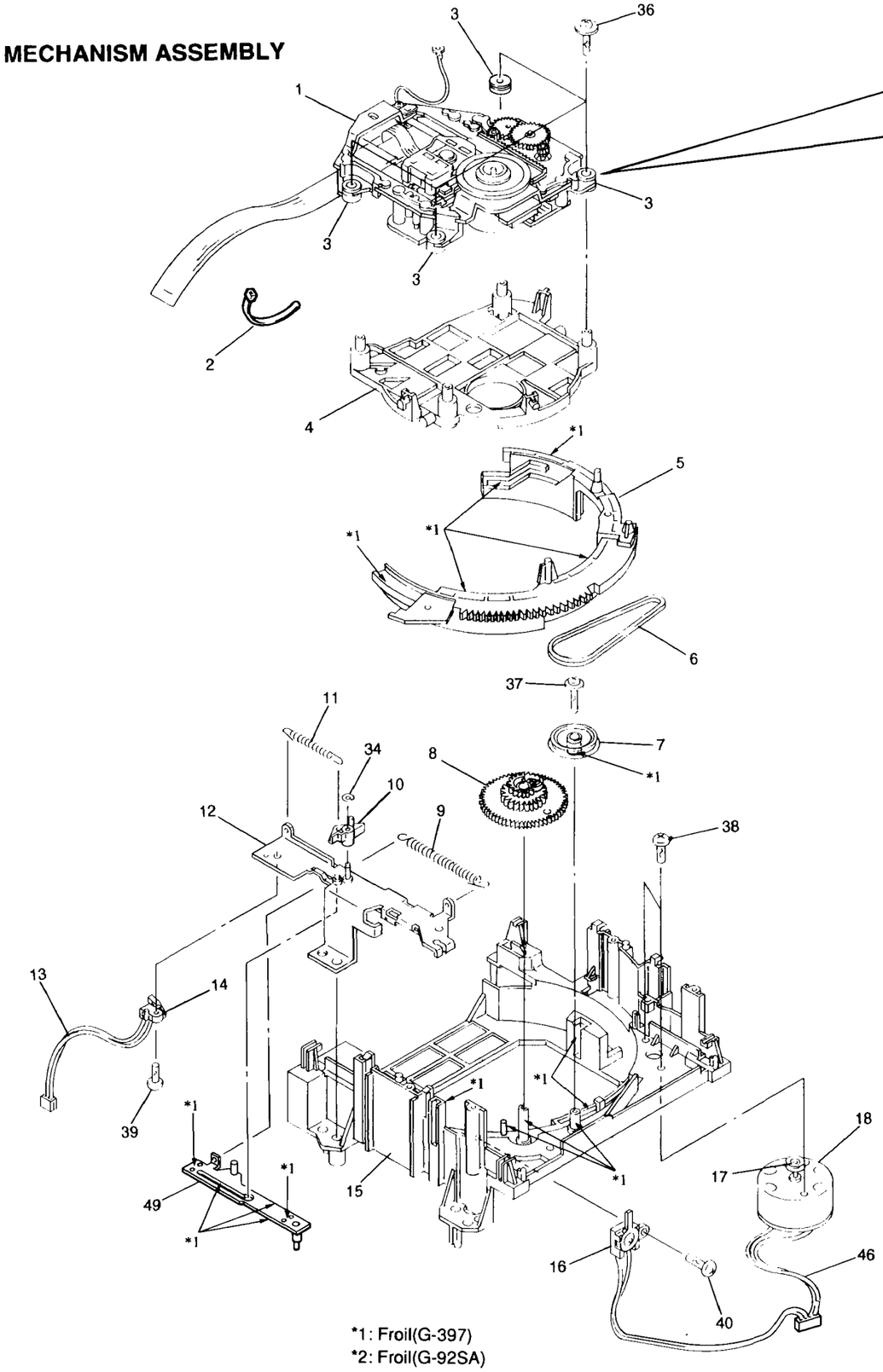
(1) PACKING



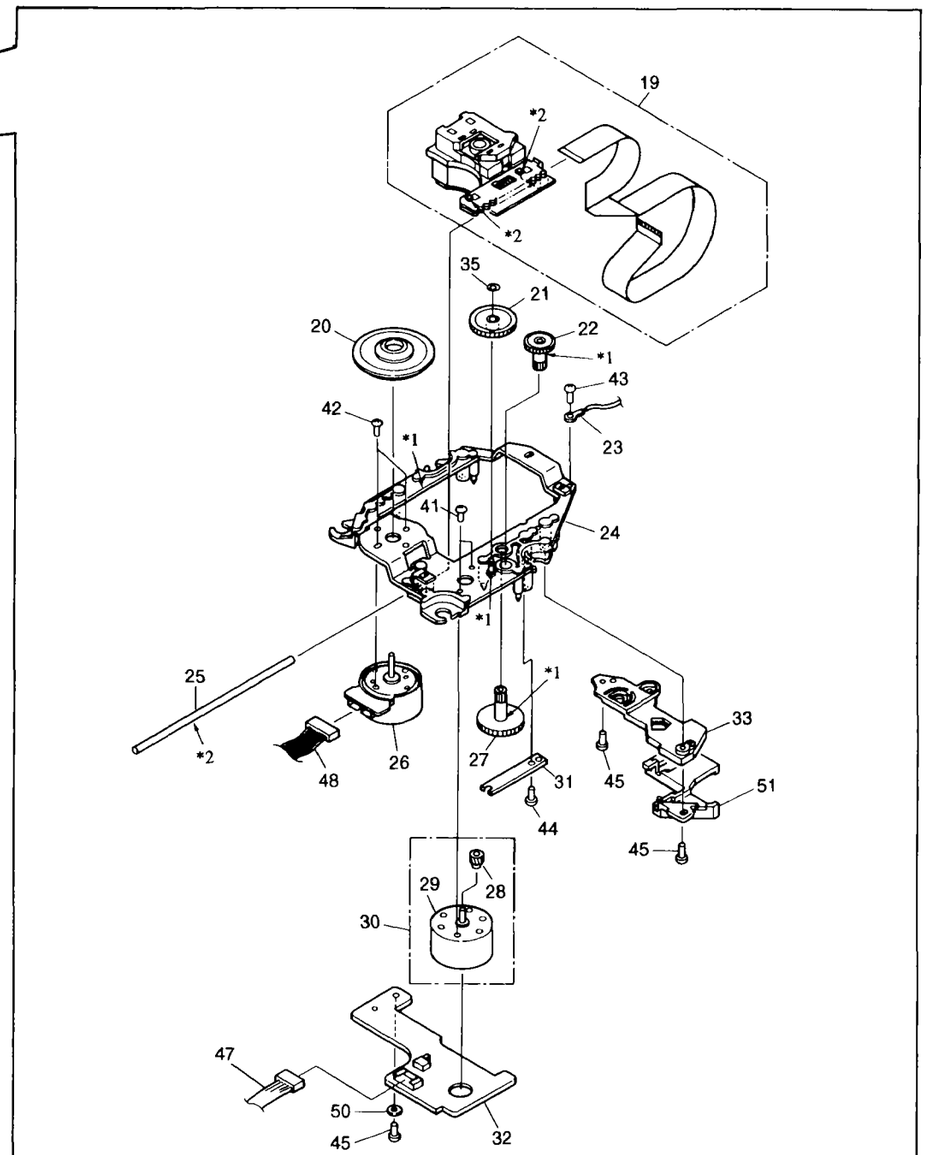
(2) EXTERIOR SECTION



(3) MECHANISM ASSEMBLY



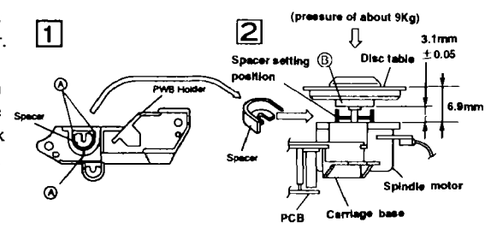
*1: Froil(G-397)
*2: Froil(G-92SA)



• How to install the disc table

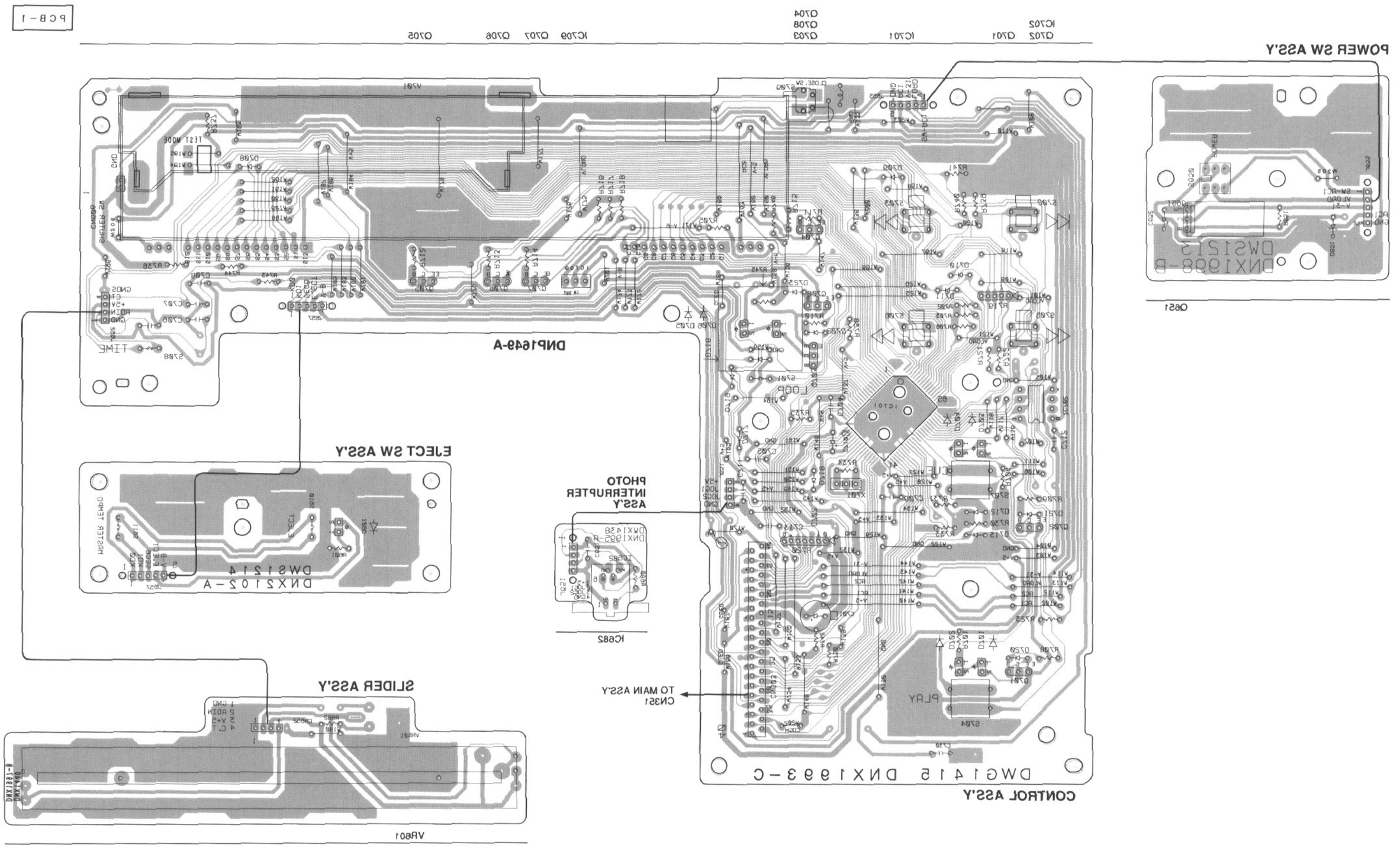
1 Use nipper or other tool to cut the three sections marked Ⓐ figure 1. Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the motor base (angled so it doesn't touch section Ⓑ),and stick the disc table on top (takes about 9Kg pressure). Take off the spacer.



2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

2.2.1 CONTROL ASS'Y, POWER SW ASS'Y, EJECT SW ASS'Y, PHOTO INTERRUPTER ASS'Y AND SLIDER ASS'Y

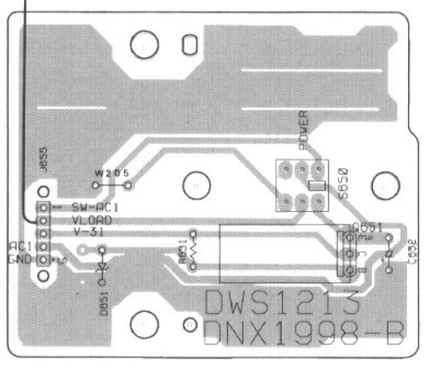


This diagram is viewed from the foil side.

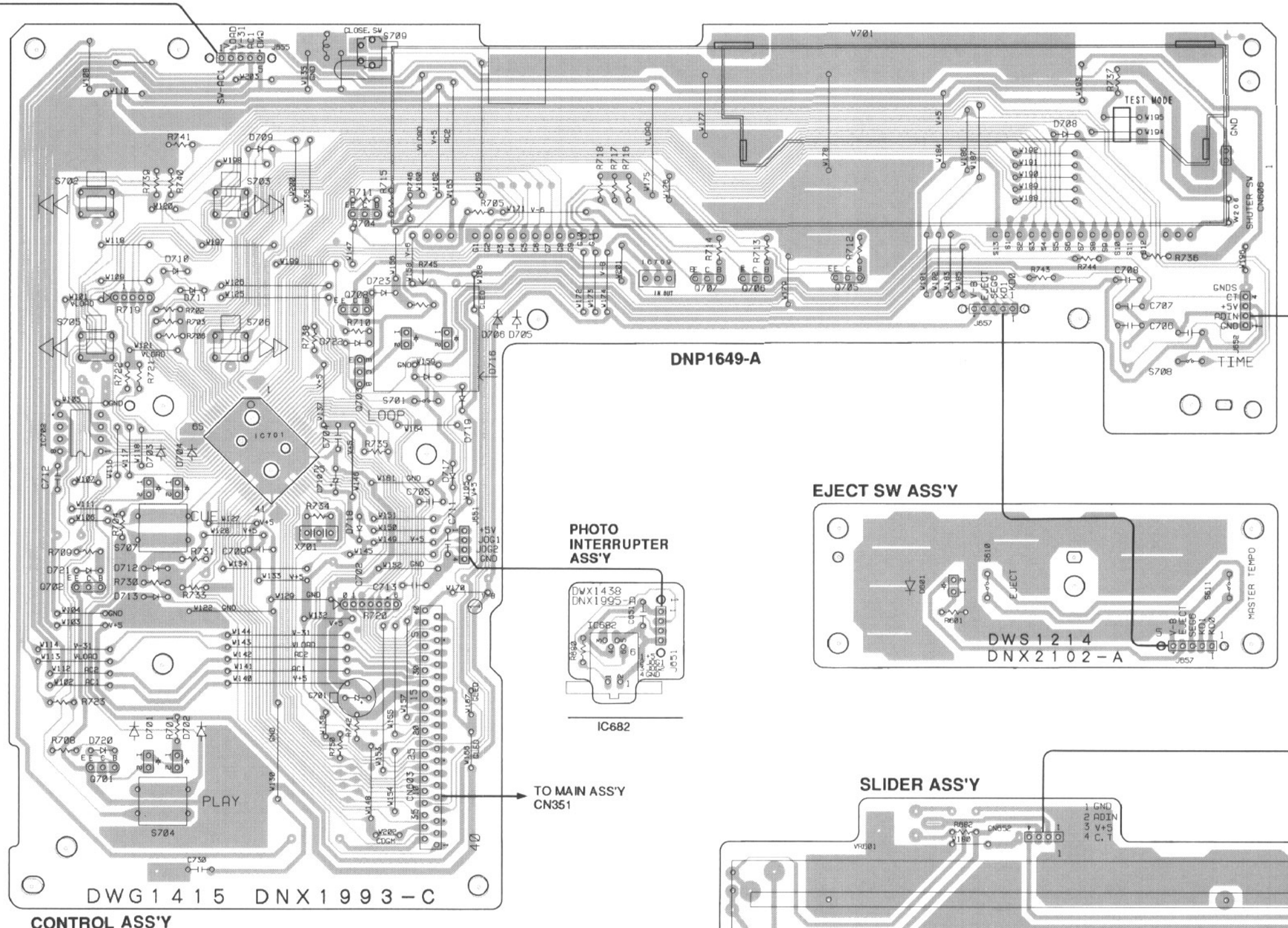
PCB – 1

IC702 Q702 Q701 IC701 Q704 Q708 Q703 IC709 Q707 Q706 Q705

POWER SW ASS'Y



Q651



CONTROL ASS'Y

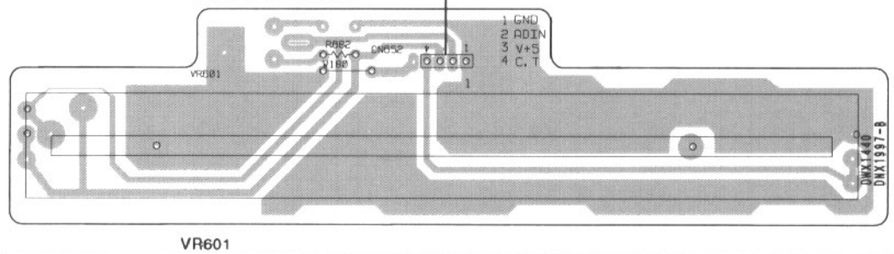
PHOTO INTERRUPTER ASS'Y

IC682

TO MAIN ASS'Y CN351

EJECT SW ASS'Y

SLIDER ASS'Y



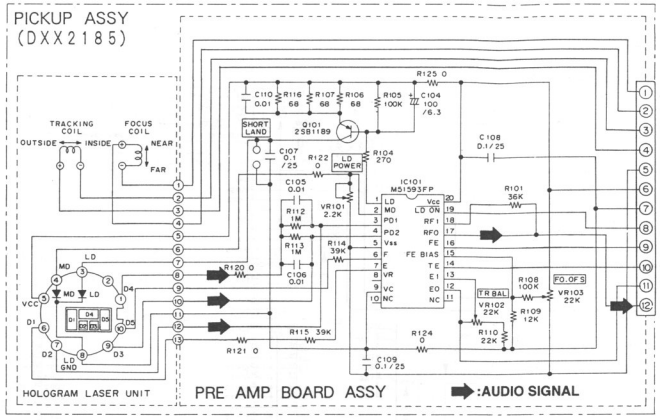
VR601

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3- terminal regulator

This diagram is viewed from the mounted parts side.



SCH-1

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

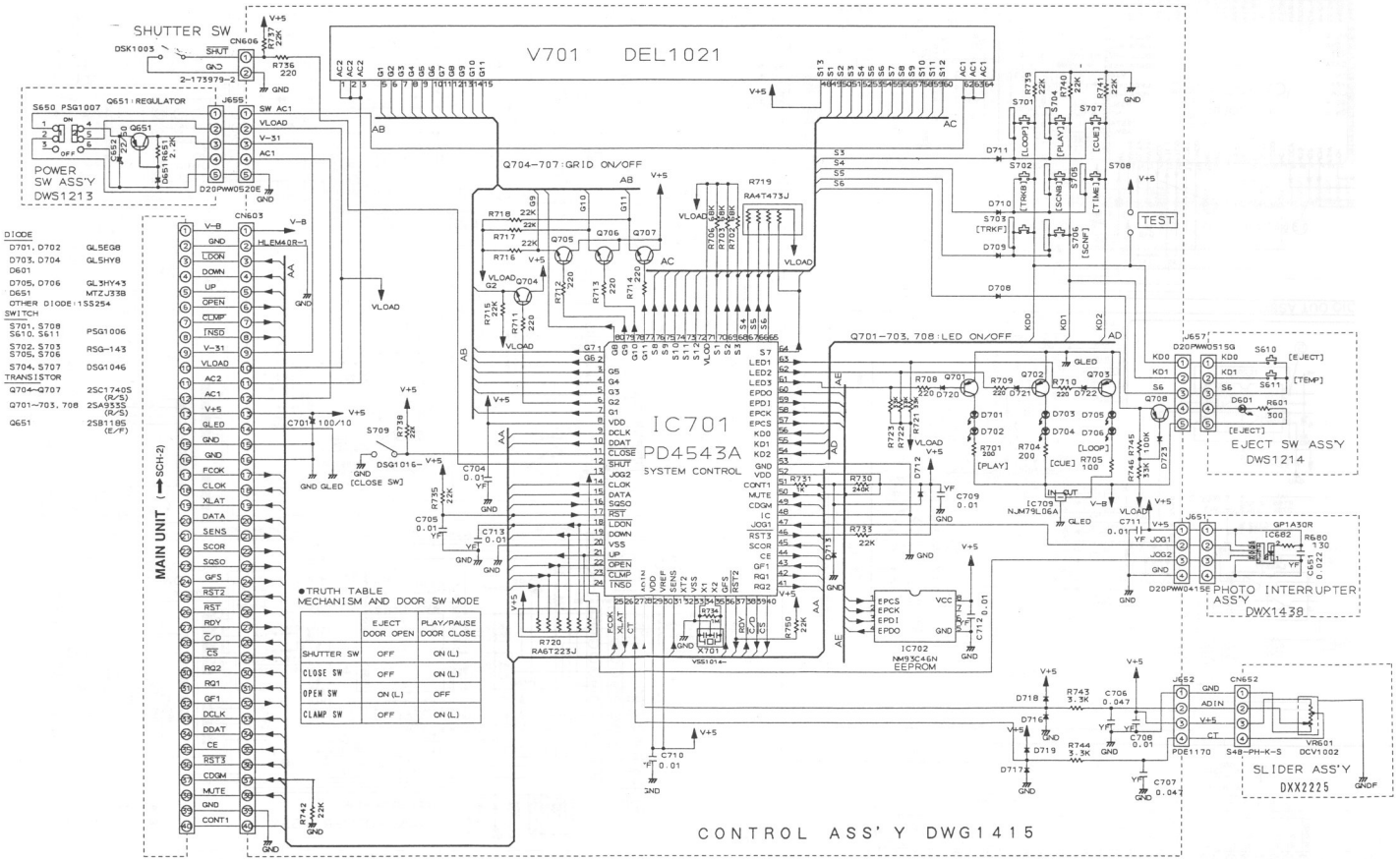
1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⏥ or ⊥ V :
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ⇨ mA :
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   - ⊘ or ⓿ : Adjusting point.
   - ◄ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

```
CDG MECHANISM ASS'Y
  S601:INSIDE SW

EJECT SW ASS'Y
  S610:EJECT
  S611:MASTER TEMPO

POWER SW ASS'Y
  S650:POWER STANDBY/ON  OFF-ON

CONTROL ASS'Y
  S701:LOOP
  S702:TRACK SEARCH(|◄◄)
  S703:TRACK SEARCH(►►|)
  S704:PLAY/PAUSE
  S705:SEARCH(◄◄)
  S706:SEARCH(►►)
  S707:CUE
  S708:TIME MODE
  S709:CLOSE SW
```



DIODE

D701, D702	GL5EG8
D703, D704	GL5HY8
D651	
D705, D706	GL3HY43
D651	MTZJ33B
OTHER DIODE	1SS254

SWITCH

S701, S708	
S610, S611	PSG1006
S702, S703	RSG-143
S705, S706	
S704, S707	DSG1046

TRANSISTOR

Q704~Q707	2SC1740S (R/S)
Q701~703, 708	2SA933S (R/S)
Q651	2SB1185 (E/F)

SCH-1 PICKUP Ass'y, CONTROL Ass'y, POWER SW Ass'y, EJECT SW Ass'y, PHOTO INTERRUPTER Ass'y, SLIDER Ass'y

SCH-1 PICKUP Ass'y, CONTROL Ass'y, POWER SW Ass'y, EJECT SW Ass'y, PHOTO INTERRUPTER Ass'y, SLIDER Ass'y

VOLTAGES(V) OF CONTROL ASS'Y SECTION

Note: Voltages are in the PLAY mode.

IC701(PD4543A)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	−25.3 to −25	41	4.9
2	−25.3 to −25	42	4.9
3	−25.3 to −24.9	43	0 to 4.8
4	−25.3 to −25	44	0.1
5	−25.3 to −25	45	0.1
6	−25.6 to −25.4	46	4.9
7	−25.4 to −25.2	47	0 to 4.9
8	5	48	0
9	4.9	49	0.1
10	0.1	50	0
11	4.9	51	4.8
12	0	52	5
13	0 to 4.9	53	0
14	4.8	54	0
15	0.2	55	0
16	4.3	56	0
17	4.9	57	0
18	0.1	58	0
19	0	59	4.8
20	0	60	0
21	0	61	−1.5
22	4.9	62	4.6
23	0	63	−1.5
24	4.9	64	−23 to −11
25	4.9	65	−14 to −1.1
26	4.9	66	−14 to −6.6
27	2.4	67	−6.3 to 1.8
28	2.4	68	−4.5 to 2.7
29	5	69	−6 to1.8
30	5	70	−10.2 to −0.2
31	2.4 to 2.6	71	−28.1
32	2.3 to 2.6	72	−18.9
33	0	73	−19
34	2.4	74	−21.6
35	2.2	75	−19
36	4.8	76	−18.4
37	4.9	77	−25.3 to −25
38	4.9	78	−25.3 to −25.1
39	4.9	79	−25.3 to −25
40	4.8	80	−25.5 to −25.3

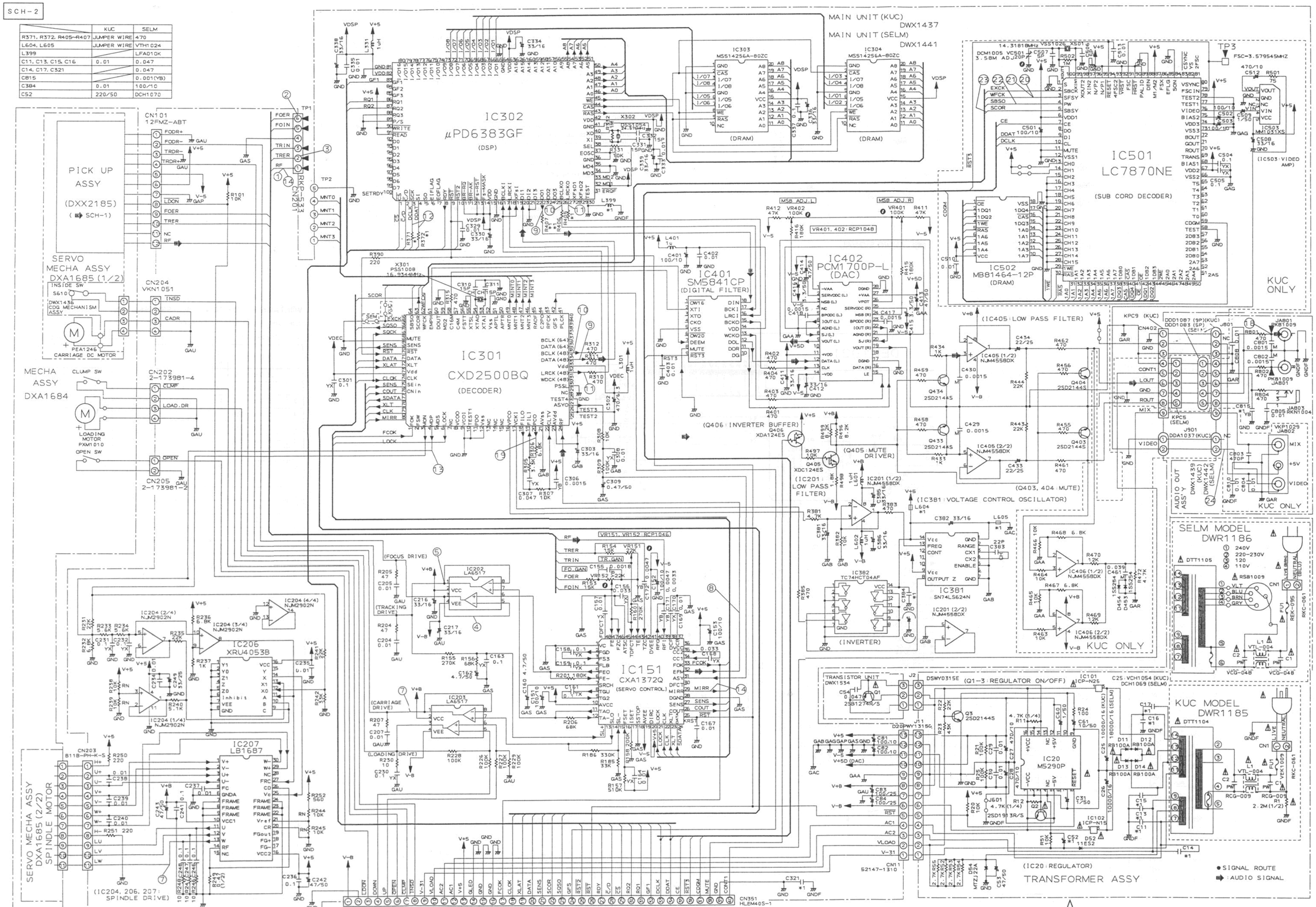
IC702(NM93C46N)

Pin No.	Voltage(V)
1	0
2	0
3	4.8
4	0
5	0
6	0
7	0
8	5

2.2.2 MAIN UNIT, MECHANISM ASS'Y, TRANSFORMER ASS'Y TRANSISTOR UNIT AND AUDIO OUT ASS'Y

SCH-2

	KUC	SELM
R371, R372, R405~R407	JUMPER WIRE	470
L604, L605	JUMPER WIRE	VTH1024
L399		LFA010K
C11, C13, C15, C16	0.01	0.047
C14, C17, C321		0.047
C815		0.001(VB)
C384	0.01	100/10
C52	220/50	DCH1070



SCH-2 MAIN UNIT, MECHANISM Ass'y, TRANSFORMER Ass'y, TRANSISTOR UNIT, AUDIO OUT Ass'y

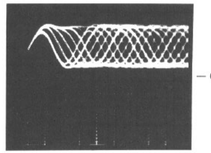
SI.U4961

WAVEFORMS

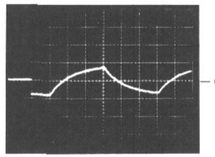
Note : The encircled numbers denote measuring points in the schematic diagram.

∗1 10T-JUMP : After switching to the play mode, Press the manual search key.
∗2 FOCUS-IN : Press the PLAY key without loading a disc.
∗3 TRACK SEARCH : Track search from outermost track to innermost track.
∗4 POWER ON : Turn power switch ON.
∗5 POWER OFF : Turn power switch OFF.

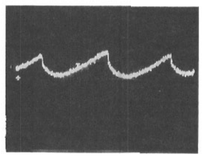
① TP1-Pin 1: PLAY MODE (RF)
500mV/div 500nsec/div



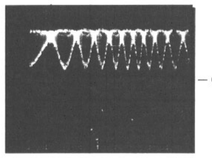
④ IC202-Pin 9: FOCUS-IN (∗2) MODE (FODR)
1V/div 200msec/div



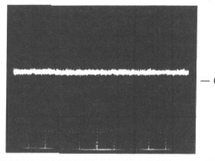
⑦ IC203-Pin 1: PLAY MODE (CADR)
200mV/div 2sec/div



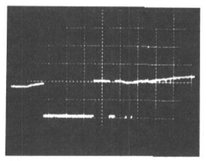
① TP1-Pin 1: TRACK SEARCH MODE (RF)
500mV/div 200µsec/div



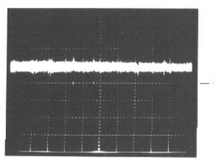
④ IC202-Pin 9: PLAY MODE (FODR)
1V/div 1msec/div



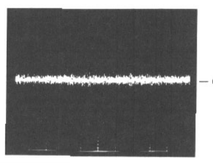
⑦ IC201-Pin 4: TRACK SEARCH MODE (CADR)
2V/div 500msec/div



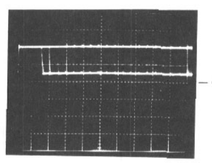
② TP1-Pin 6: PLAY MODE (FOER)
100mV/div 10msec/div



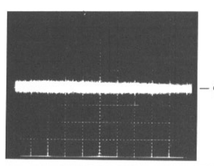
⑤ IC202-Pin 3: PLAY MODE (TRDR)
500mV/div 1msec/div



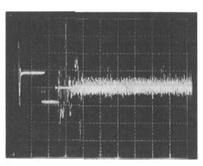
⑧ IC151-Pin 32: PLAY MODE (EFM)
2V/div 500nsec/div



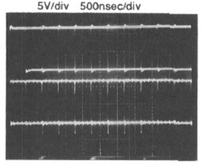
③ TP1-Pin 2: PLAY MODE (TRER)
1V/div 10msec/div



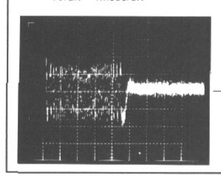
⑤ IC202-Pin 1: 10T-JUMP (∗1) MODE (TRDR)
500mV/div 1msec/div



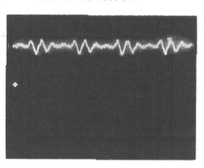
⑨ : PLAY MODE
Upper : IC301-Pin34
Lower : IC302-Pin23
5V/div 500nsec/div



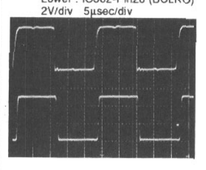
③ TP1-Pin 2: 10T-JUMP (∗1) MODE (TRER)
1V/div 1msec/div



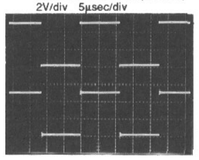
⑥ IC207-Pin 13: PLAY MODE (SPDR)
5V/div 50msec/div



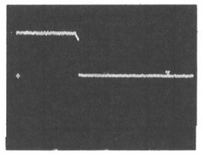
⑩ : PLAY MODE
Upper : IC301-Pin35 (BCLK)
Lower : IC302-Pin26 (BCLKO)
2V/div 5µsec/div



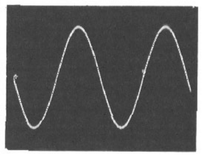
⑪ : PLAY MODE
Upper : IC301-Pin32(LRCK)
Lower : IC302-Pin27(LRCKO)
2V/div 5µsec/div



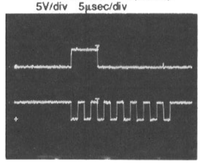
⑮ IC701-Pin 17: POWER OFF (∗4) (RST)
2V/div 100msec/div



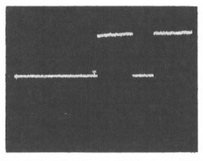
⑱ PIN-OUTPUT(Lch): PLAY MODE
1V/div 200µsec/div



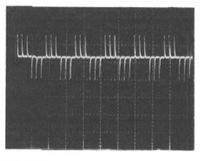
⑫ : PLAY MODE
Upper : IC302-Pin4(D DAT)
Lower : IC302-Pin3(DCLK)
5V/div 5µsec/div



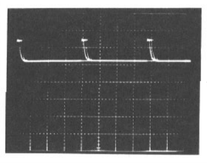
⑯ IC701-Pin 37: POWER ON (∗3) (RST2)
2V/div 100msec/div



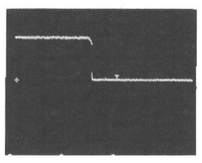
⑲ IC301-Pin 20: PLAY MODE (PCO)
2V/div 10µsec/div



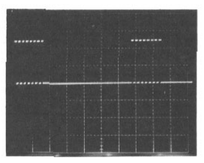
⑬ IC301-Pin 4: PLAY MODE (MDP)
2V/div 2µsec/div



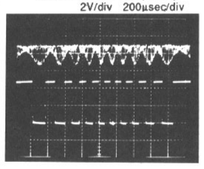
⑯ IC701-Pin 37: POWER OFF (∗4) (RST2)
2V/div 100msec/div



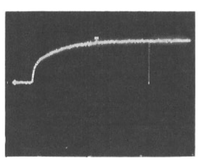
⑳ IC501-Pin 2: PLAY MODE (EXCK)
2V/div 20µsec/div



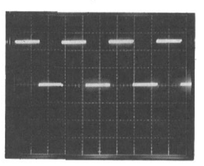
⑭ : TRACK SEARCH MODE
Upper : TP1-Pin1(RF) 1V/div
Lower : IC151-Pin29(MIRR) 2V/div 200µsec/div



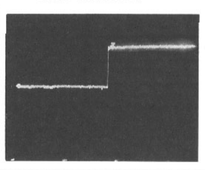
⑰ IC701-Pin 46: POWER ON (∗3) (RST3)
2V/div 100msec/div



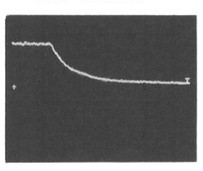
㉑ IC501-Pin 3: PLAY MODE (WFCK)
2V/div 50µsec/div



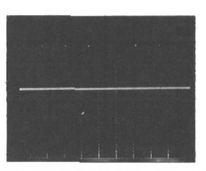
⑮ IC701-Pin 17: POWER ON (∗3) (RST)
2V/div 100msec/div



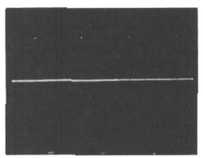
⑰ IC701-Pin 46: POWER OFF (∗4) (RST3)
2V/div 100msec/div



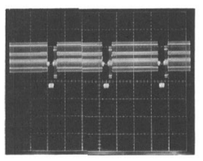
㉒ IC501-Pin 4: PLAY MODE (SBSO)



㉓ IC501-Pin 5: PLAY MODE (SCOR)
2mV/div 5msec/div



㉔ VIDEO OUTPUT(PIN OUTPUT): PLAY MODE
500mV/div 20µsec/div



VOLTAGES (V) OF MAIN UNIT SECTION

Note: Voltages are in the PLAY mode.

IC201(NJM4558DX)

Pin No.	Voltage(V)
1	1.6
2	1.6
3	1.6
4	−10.3
5	0
6	0
7	0
8	9

IC203(LA6517)

Pin No.	Voltage(V)
1	0
2	9
3	0
4	−10.3
5	0
6	0
7	0 to 0.3
8	0

IC202(LA6517)

Pin No.	Voltage(V)
1	0
2	9
3	0.4
4	−10.2
5	0.4
6	0.4
7	0
8	0

IC204(NJM2902N)

Pin No.	Voltage(V)
1	2.5
2	2.5
3	2.5
4	5
5	2.5
6	2.5
7	2.5
8	3.6
9	0.6
10	2.5
11	0
12	0
13	0
14	0

IC206(XRU4053B)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	3.6
12	2.9
13	2.5
14	2.5
15	0
16	5

IC503(MM1031XS)

Pin No.	Voltage(V)
1	1.8
2	0
3	0
4	2.2
5	5

IC207(LB1687)

Pin No.	Voltage(V)
1	2.5
2	2.5
3	2.5
4	2.5
5	0.6
6	0
7	0
8	0
9	0
10	9
11	4.5
12	4.5
13	4.5
14	0
15	0
16	5
17	0.4
18	2.5
19	0.7
20	0
21	2.4
22	0
23	0
24	0
25	2.5
26	0
27	3.6
28	0
29	2.5
30	2.5

IC405(NJM4558DX)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	−10.3
5	0
6	0
7	0
8	9.1

IC151(CXA1372Q)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	0
5	0.4
6	0
7	0.3
8	0
9	0
10	5
11	0
12	0
13	0
14	0 to 0.3
15	0
16	−3.9
17	1.3
18	0
19	−5
20	5
21	4.9
22	4.8
23	4.9
24	0.2
25	4.9
26	0.1
27	4.8
28	0
29	0
30	0
31	2.5
32	2.6
33	4.9
34	−1.1
35	−1.4
36	5
37	−0.4
38	−2.3
39	0
40	0.8
41	−5
42	0
43	0
44	0
45	0
46	0.1
47	0.1
48	0

IC301(CXD2500BQ)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	4.9	41	1.4
2	0	42	4.8
3	4.9	43	2.5
4	2.5	44	0
5	0	45	4.9
6	4.9	46	4.4
7	0	47	0
8	4.9	48	0
9	0	49	0
10	0	50	1.2
11	0	51	1.2
12	0	52	0
13	0	53	2.3
14	0	54	2.5
15	0	55	0
16	1.6	56	2
17	2.6	57	1.4
18	2.6	58	1.2
19	2.5	59	0
20	2.5	60	0
21	0	61	0
22	2.6	62	2.5
23	5	63	0.1
24	2.6	64	0.2
25	0	65	0.7
26	0	66	4.3
27	2.5	67	4.8
28	0	68	0
29	0	69	2.4 to 2.6
30	0	70	4.9
31	2.4	71	0.2
32	2.5	72	4.9
33	4.9	73	4.9
34	0	74	4.8
35	1.9	75	4.8
36	2.5	76	0.1
37	1.7	77	0.2
38	2.5	78	4.9
39	0	79	4.8
40	4.9	80	0

IC303(MS514256A−80ZC)

Pin No.	Voltage(V)
1	0
2	4.6
3	2.4
4	2.2
5	0
6	2.2
7	2.4
8	4.7
9	4.4
10	0
11	0.9
12	2.7
13	2.4 to 2.6
14	2.5
15	4.9
16	2.5
17	2.4
18	2.4
19	2.4 to 2.6
20	2.2 to 2.6

IC304(MS514256A−80ZC)

Pin No.	Voltage(V)
1	0
2	4.6
3	2.6
4	2.3
5	0
6	2.4
7	2.7
8	4.7
9	4.4
10	0
11	0.9
12	2.7
13	2.4 to 2.6
14	2.5
15	4.9
16	2.5
17	2.4
18	2.4
19	2.4 to 2.6
20	2.2 to 2.6

IC302(UPD6383GF)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	4.8	51	2.4
2	4.9	52	2.4
3	4.9	53	2.4 to 2.6
4	0.1	54	2.2 to 2.6
5	0	55	2.4 to 2.5
6	0	56	2.4 to 2.5
7	0	57	2.3 to 2.6
8	4.9	58	2.3 to 2.6
9	4.9	59	2.2 to 2.7
10	4.9	60	0.5 to 4
11	4.9	61	2 to 4
12	4.9	62	2.5 to 4.8
13	4.9	63	4.9
14	4.9	64	0
15	4.9	65	2.4
16	0	66	2.7
17	2.2	67	2.6
18	2.5	68	2.3
19	2.2	69	2.2
20	2.4	70	2.4
21	0	71	2.4
22	0	72	2.2
23	2.5	73	0
24	3.1	74	0
25	3.1	75	0
26	2.5	76	0
27	2.5	77	0
28	0	78	0
29	0	79	0
30	0	80	0
31	4.9	81	0
32	4.9	82	4.9
33	4.9	83	0 to 4.8
34	0	84	0
35	0	85	0
36	0	86	4.9
37	0	87	4.9
38	4.9	88	0
39	0	89	0
40	2.6	90	5
41	0	91	5
42	4.9	92	4.9
43	4.4	93	4.9
44	4.6	94	4.9
45	4.7	95	4.9
46	3.1	96	4.9
47	2.7	97	4.9
48	2.4 to 2.6	98	4.9
49	2.5	99	4.9
50	2.5	100	4.8

IC381(SN74LS624N)

Pin No.	Voltage(V)
1	11.6
2	11.6
3	2.1
4	2.1
5	0
6	1.1
7	0
8	1.1
9	4.9
10	0
11	0
12	0
13	1.6
14	4.9

IC382(TC74HCT04AF)

Pin No.	Voltage(V)
1	0
2	4.9
3	0
4	4.9
5	1.1
6	2.2
7	0
8	4.9
9	0
10	4.9
11	0
12	4.9
13	0
14	4.9

IC406(NJM4558DX)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	−10.3
5	0
6	0
7	0
8	9.1

IC401(SM5841CP)

Pin No.	Voltage(V)
1	4.8
2	2.2
3	2.5
4	2.2
5	0
6	4.8
7	0
8	0
9	4.9
10	3
11	1.5
12	1.6
13	3.6
14	4.9
15	1.1
16	2.5
17	2.5
18	2.5

IC502(MB81464−12P)

Pin No.	Voltage(V)
1	2.5
2	0
3	0
4	4.9
5	2.5
6	3.1
7	3.1
8	1.8
9	5
10	3.1
11	3.1
12	1.9
13	2.1
14	1.4
15	0
16	3.9
17	0
18	0

IC402(PCM1700P−L)

Pin No.	Voltage(V)
1	−5
2	−1.8
3	−4.5
4	0
5	2.9
6	0
7	0
8	0
9	0
10	0
11	5
12	1.7
13	1.7
14	−5
15	3.8
16	1.7
17	0
18	0
19	0
20	0
21	0
22	0
23	2.9
24	−4.5
25	−1.7
26	−4.2
27	5
28	0

IC501(LC7870NE)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0	51	3.1
2	0.7	52	3.1
3	2.5	53	3.1
4	0.2	54	0
5	0.1	55	0
6	5	56	0
7	0.1	57	0
8	0	58	0
9	0.1	59	0.1
10	4.9	60	0
11	0	61	0
12	0	62	0
13	5	63	0
14	5	64	0
15	0	65	0
16	0	66	0
17	0	67	5
18	0	68	2.8
19	0	69	3.9
20	0	70	3.9
21	0	71	4
22	0	72	4.4
23	0	73	0
24	0	74	5
25	0	75	2.9
26	0	76	4
27	0	77	0
28	0	78	0
29	4.9	79	2.8
30	2.5	80	4.9
31	1.4	81	3
32	2.1	82	4.9
33	1.9	83	4.5
34	3.1	84	0
35	1.8	85	0
36	3.1	86	4.9
37	3.1	87	5
38	3.1	88	0
39	0	89	5
40	3.9	90	5
41	0	91	2.8
42	2.5	92	5
43	0	93	2.5
44	0	94	4.9
45	1.5	95	5
46	4.9	96	5
47	2.1	97	0
48	1.9	98	4.9
49	3.1	99	0
50	1.8	100	2.2

VOLTAGES(V) OF TRANSFORMER ASS'Y SECTION

Note: Voltages are in the PLAY mode.

IC20(M5290P)

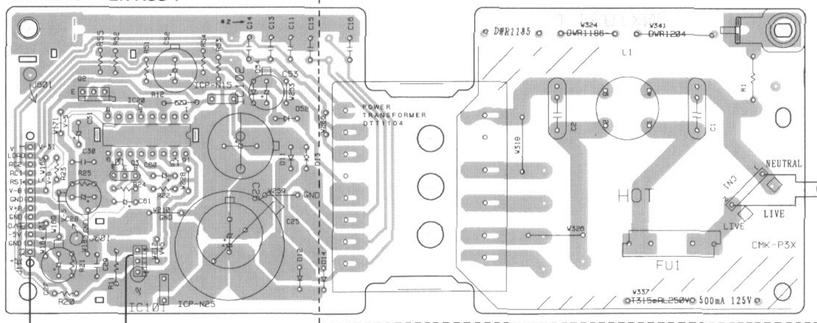
Pin No.	Voltage(V)
1	−10.3
2	0
3	−9.6
4	0
5	−5
6	0
7	1.3
8	4.9
9	0
10	1.2
11	1.2
12	5
13	0
14	8.3
15	0
16	9.1

PCB-2

This diagram is viewed from the mounted parts side.

For CDJ-500G/KUC

TRANSFORMER ASS'Y

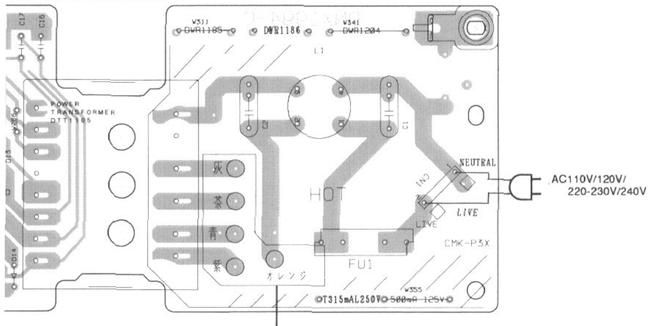


TRANSISTOR UNIT

Q1

For CDJ-500/SELM

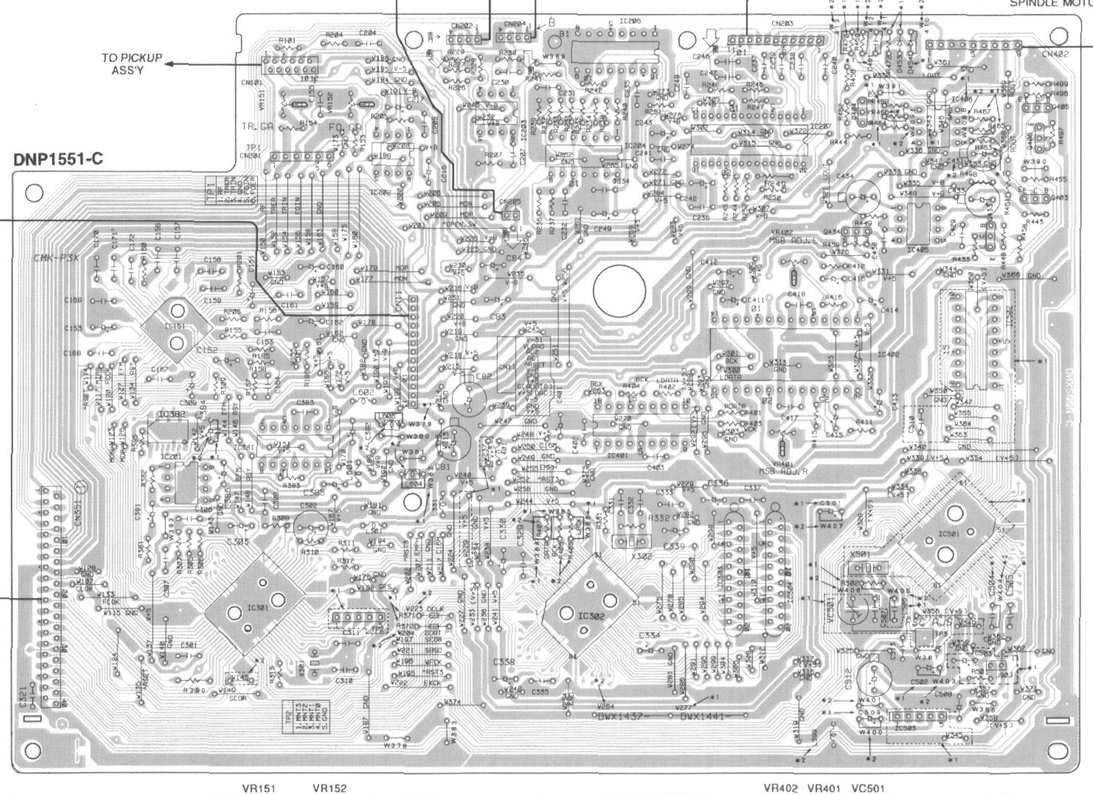
TRANSFORMER ASS'Y



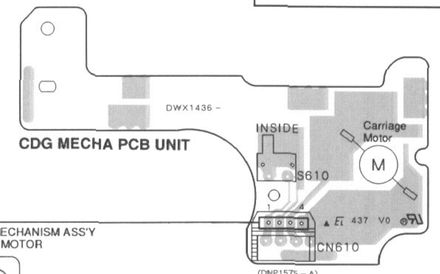
TO VOLTAGE SELECTOR

DNP1551-C

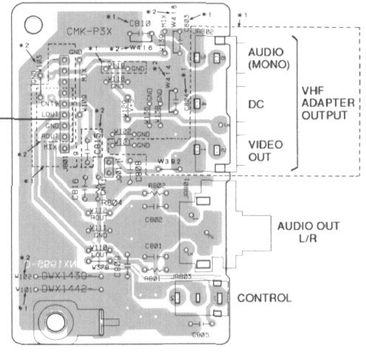
MAIN UNIT



CDG MECHA PCB UNIT



AUDIO OUT ASS'Y



Note:
*1; CDJ-500G/KUC only
*2; CDJ-500/SELM only

PCB-2

This diagram is viewed from the foil side.

CDG MECHA PCB UNIT

TO OPEN COMPLETION SW

TO MECHANISM ASS'Y
LOADING MOTOR,
CLAMP COMPLETION SW

TO SERVO MECHANISM ASS'Y
SPINDLE MOTOR

MAIN UNIT

TO PICKUP
ASS'Y

DNP155I-C

TO CONTROL
ASS'Y
CN603

AUDIO OUT ASS'Y

TRANSFORMER ASS'Y

For CDJ-500G/KUC

AC
120V

TRANSISTOR
UNIT

Q1

TRANSFORMER ASS'Y

For CDJ-500/SELM

AC110V/120V/
220-230V/240V

TO VOLTAGE
SELECTOR

Note:
*1: CDJ-500G/KUC only
*2: CDJ-500/SELM only